CASE COVER SHEET

City of Rockwall
Planning and Zoning Department
385 S. Goliad Street
Rockwall, Texas 75087

PLANNING & ZONING CASE NO. SP2022-057

PLANNING & ZONING FEE $ 423.60

PLATTING APPLICATION
- ☐ MASTER PLAT
- ☐ PRELIMINARY PLAT
- ☐ FINAL PLAT
- ☐ REPLAT
- ☐ AMENDING OR MINOR PLAT
- ☐ PLAT REINSTATEMENT REQUEST

SITE PLAN APPLICATION
- ☑ SITE PLAN
- ☐ AMENDED SITE PLAN/ELEVATIONS/LANDSCAPING

ZONING APPLICATION
- ☐ ZONING CHANGE
- ☐ SPECIFIC USE PERMIT
- ☐ PD DEVELOPMENT PLAN

OTHER APPLICATION
- ☐ TREE REMOVAL
- ☐ VARIANCE REQUEST/SPECIAL EXCEPTIONS

RECORD OF RECOMMENDATIONS, VOTING RECORDS, AND CONDITIONS OF APPROVAL

ARCHITECTURE REVIEW BOARD

On January 10, 2023 the Architecture Review Board approved a motion to recommend approval of the building elevations and variances/exceptions, with the condition that the stucco parapets be brought back 2-feet, by a vote of 3-0, with Board Members Miller, Lefere, and McAngus absent.

PLANNING AND ZONING COMMISSION

On January 10, 2023, the Planning and Zoning Commission approved a motion to approve the site plan by a vote of 6-0, with Commissioner Hustings absent.

CITY COUNCIL READING #1

CITY COUNCIL READING #2

CONDITIONS OF APPROVAL

Before any Certificates of Occupancy (CO's) are issued for future tenants, documentation shall be provided indicating that any proposed Roof Top Units (RTU's) will meet the screening requirements and will not be visible from any adjacent property, open space, or public right-of-way.

NOTES

DEVELOPMENT APPLICATION

City of Rockwall
Planning and Zoning Department
385 S. Goliad Street
Rockwall, Texas 75087

STAFF USE ONLY

PLANNING & ZONING CASE NO.

NOTE: THE APPLICATION IS NOT CONSIDERED ACCEPTED BY THE CITY UNTIL THE PLANNING DIRECTOR AND CITY ENGINEER HAVE SIGNED BELOW.

DIRECTOR OF PLANNING:

CITY ENGINEER:

PLEASE CHECK THE APPROPRIATE BOX BELOW TO INDICATE THE TYPE OF DEVELOPMENT REQUEST [SELECT ONLY ONE BOX]:

PLATTING APPLICATION FEES:
- ☐ MASTER PLAT ($100.00 + $15.00 ACRE) [1]
- ☐ PRELIMINARY PLAT ($200.00 + $15.00 ACRE) [1]
- ☐ FINAL PLAT ($300.00 + $20.00 ACRE) [1]
- ☐ REPLAT ($300.00 + $20.00 ACRE) [1]
- ☐ AMENDING OR MINOR PLAT ($150.00)
- ☐ PLAT REINSTATEMENT REQUEST ($100.00)

SITE PLAN APPLICATION FEES:
- ☑ SITE PLAN ($250.00 + $20.00 ACRE) [1]
- ☐ AMENDED SITE PLAN/ELEVATIONS/LANDSCAPING PLAN ($100.00)

ZONING APPLICATION FEES:
- ☐ ZONING CHANGE ($200.00 + $15.00 ACRE) [1]
- ☐ SPECIFIC USE PERMIT ($200.00 + $15.00 ACRE) [1]
- ☐ PD DEVELOPMENT PLANS ($200.00 + $15.00 ACRE) [1]

OTHER APPLICATION FEES:
- ☐ TREE REMOVAL ($75.00)
- ☐ VARIANCE REQUEST ($100.00)

NOTES:
[1]: IN DETERMINING THE FEE, PLEASE USE THE EXACT ACREAGE WHEN MULTIPLYING BY THE PER ACRE AMOUNT FOR REQUESTS ON LESS THAN ONE ACRE, ROUND UP TO ONE (1) ACRE.

PROPERTY INFORMATION [PLEASE PRINT]

ADDRESS: not yet assigned*

SUBDIVISION: LOT: BLOCK:

GENERAL LOCATION: NEC E Quail Run Road and 205

ZONING, SITE PLAN AND PLATTING INFORMATION [PLEASE PRINT]

CURRENT ZONING: PD-70
PROPOSED ZONING: PD-70
ACREAGE: 8.684 AC LOTS [CURRENT]:

CURRENT USE: Undeveloped land
PROPOSED USE: Commercial (Retail)
LOTS [PROPOSED]:

☐ ***SITE PLANS AND PLATS:*** *BY CHECKING THIS BOX YOU ACKNOWLEDGE THAT DUE TO THE PASSAGE OF HB3167 THE CITY NO LONGER HAS FLEXIBILITY WITH REGARD TO ITS APPROVAL PROCESS, AND FAILURE TO ADDRESS ANY OF STAFF'S COMMENTS BY THE DATE PROVIDED ON THE DEVELOPMENT CALENDAR WILL RESULT IN THE DENIAL OF YOUR CASE.*

OWNER/APPLICANT/AGENT INFORMATION [PLEASE PRINT/CHECK THE PRIMARY CONTACT/ORIGINAL SIGNATURES ARE REQUIRED]

☐ OWNER
CONTACT PERSON:
ADDRESS:
CITY, STATE & ZIP:
PHONE:
E-MAIL:

☑ APPLICANT: DuWest Realty, LLC
CONTACT PERSON: Bowen Hendrix
ADDRESS: 4403 North Central Expressway
Suite 200
CITY, STATE & ZIP: Dallas, TX 75025
PHONE: (214) 918-1804
E-MAIL: bowen@duwestrealty.com

NOTARY VERIFICATION [REQUIRED]

BEFORE ME, THE UNDERSIGNED AUTHORITY, ON THIS DAY PERSONALLY APPEARED Bowen Hendrix [OWNER] THE UNDERSIGNED, WHO STATED THE INFORMATION ON THIS APPLICATION TO BE TRUE AND CERTIFIED THE FOLLOWING:

"I HEREBY CERTIFY THAT I AM THE OWNER FOR THE PURPOSE OF THIS APPLICATION; ALL INFORMATION SUBMITTED HEREIN IS TRUE AND CORRECT; AND THE APPLICATION FEE OF $ 230.26 *TO COVER THE COST OF THIS APPLICATION, HAS BEEN PAID TO THE CITY OF ROCKWALL ON THIS THE* January *DAY OF* 2022. *BY SIGNING THIS APPLICATION, I AGREE THAT THE CITY OF ROCKWALL (I.E. "CITY") IS AUTHORIZED AND PERMITTED TO PROVIDE INFORMATION CONTAINED WITHIN THIS APPLICATION TO THE PUBLIC. THE CITY IS ALSO AUTHORIZED AND PERMITTED TO REPRODUCE ANY COPYRIGHTED INFORMATION SUBMITTED IN CONJUNCTION WITH THIS APPLICATION, IF SUCH REPRODUCTION IS ASSOCIATED OR IN RESPONSE TO A REQUEST FOR PUBLIC INFORMATION."*

GIVEN UNDER MY HAND AND SEAL OF OFFICE ON THIS THE 11 *DAY OF* January *20* 22

OWNER'S SIGNATURE

NOTARY PUBLIC IN AND FOR THE STATE OF TEXAS Lisa Caldwell

LISA DIANE CALDWELL
Notary ID #742049
My Commission Expires
May 26, 2025

MY COMMISSION EXPIRES

CHECKLIST FOR SITE PLAN SUBMITTALS

City of Rockwall
Planning and Zoning Department
385 S. Goliad Street
Rockwall, Texas 75087

CASE NUMBER:		**REVIEWED BY:**	
OVERLAY DISTRICT:		**REVIEW DATE:**	

1.1 GENERAL INFORMATION FOR ALL PLANS SUBMITTED

Requirements	✓= OK	N/A	Comments	UDC Reference
Items Necessary for Site Plan Review:				*Per Application*
✓ Site Plan	☑	☐		§03.04, of Art. 11
✓ Landscape Plan	☑	☐		-
✓ Treescape Plan	☑	☐		-
✓ Photometric Plan	☐	☑		-
✓ Building Elevations	☑	☐		-
Building Material Sample Board and Color Rendering of Building Elevations	☐	☐	If required the sample board should detail all building materials, with each material clearly labeled and indicating manufacturer info, color, etc. Check with Planning Staff to see which is appropriate for the submitted project.	§03.04.A, of Art. 11
Submittal Requirements	☑	☐	Four (4) large (24" x 36") **folded** copies and one (1) PDF digital copy of each plan is required at the time of submittal.	§03.04.A, of Art. 11
Is the property properly platted?	☐	☐	Indicate if the property has been properly platted.	-
Title Block (Project Name, Legal Description and/or Address)	☑	☐	The title block is to be located in the lower right-hand corner of all sheets and contain the project name, street address, and/or the lot and block designation.	§03.04.A, of Art. 11
Case Number	☑	☐	The case number should be placed in the lower right-hand corner below the title block of all sheets.	§03.04.A, of Art. 11
Owners (Name, Address, and Phone Number)	☑	☐	The owners name, address, and phone number are required to be in the lower right-hand corner left of the title block.	§03.04.A, of Art. 11
Developer (Name, Address, and Phone Number)	☑	☐	The name, address, and phone number of the person or company that prepared the plans are required in the lower right-hand corner left of the title block.	§03.04.A, of Art. 11
North Point	☑	☐	The north point or north arrow must be facing true north (or straight up) on all plans, unless the scale of the drawings or scope of the project requires a different position.	§03.04.A, of Art. 11
Numeric and Graphic Scale	☑	☐	The recommended engineering scales are 1" = 20', 1" = 40', etc. ... with a maximum of 1" = 100'.	§03.04.A, of Art. 11
Vicinity Map	☑	☐	The vicinity map should locate the site relative to the nearest major roadways in a one-half mile radius.	§03.04.A, of Art. 11
Signature Block	☑	☐	Standard signature block with signature space for the Planning & Zoning Chairman and Planning Director.	§03.04.A, of Art. 11
Date	☑	☐	The date that the plans were prepared is required on all submittals.	§03.04.A, of Art. 11
Proposed Land Use:			Indicate the proposed use for this site. Additionally, indicate the proposed use for all structures.	§03.04.A, of Art. 11
✓Commercial	☑	☐	Land Uses Permitted in the RO, NS, GR, C, DT, RC & Designated Planned Development District Ordinances.	-
✓Industrial	☐	☑	Land Uses Permitted in the RT, LI, HI & Designated Planned Development District Ordinances.	-

2.1 SITE PLAN: MISCELLANEOUS AND DENSITY & DIMENSIONAL INFORMATION

Requirements	✓= OK	N/A	Comments	UDC Reference
Total Lot or Site Area (Acreage and Square Footage)	☑	☐	If the site is part of a larger tract include a key map showing the entire tract of land and the location of the site being planned.	§03.04.B, of Art. 11

Perimeter Dimensions of the Site	☑	☐	Indicate the perimeter dimensions of the site in feet.	§03.04.B, of Art. 11
Buildings (Square Footage)	☑	☐	Indicate the location and total square footage of all existing and planned buildings on the site.	§03.04.B, of Art. 11
Perimeter Dimensions of all Buildings	☑	☐	Indicate the wall lengths of all buildings on the site.	§03.04.B, of Art. 11
Distance Between Buildings	☐	☑	Indicate the distance between all existing and planned buildings located on the site.	§03.04.B, of Art. 11
Distance Between Buildings and Property Lines	☑	☐	Indicate the distance between all property lines and existing and planned buildings located on the site.	§03.04.B, of Art. 11
Indicate all Property Lines	☑	☐	Indicate all existing property lines. If the site plan requires a platting case that will alter the property lines show the proposed changes in a different line weight.	§03.04.B, of Art. 11
Indicate all Building Setbacks	☑	☐	Indicate all building setbacks adjacent to right-of-way.	§03.04.B, of Art. 11
Indicate all Easements	☑	☐	Additionally, indicate all utilities both existing and proposed.	§03.04.B, of Art. 11
Indicate all Drive/Turning Radii	☑	☐		§03.04.B, of Art. 11
Indicate all Drive Widths	☑	☐		§03.04.B, of Art. 11
Indicate all Fire Lanes	☑	☐	Indicate and label the widths of all fire lanes existing and proposed for the site.	§03.04.B, of Art. 11
Indicate location of all Fire Hydrants	☑	☐		§03.04.B, of Art. 11
Indicate all Sidewalks	☑	☐	Indicate and label the widths of all sidewalks existing and proposed for the site.	§03.04.B, of Art. 11
Adjacent Street Right-Of-Way	☑	☐	Reference the City's Master Transportation Plan for right-of-way information.	§03.04.B, of Art. 11
Label all Adjacent Street Name	☑	☐	Label all adjacent existing and proposed street names.	§03.04.B, of Art. 11
Adjacent Street Centerlines	☑	☐	Indicate the street centerline for all existing and proposed streets.	§03.04.B, of Art. 11
Median Breaks in Adjacent Streets	☑	☐		§03.04.B, of Art. 11

2.2 SITE PLAN: PARKING INFORMATION

Requirements	✓= OK	N/A	Comments	UDC Reference
Dimension of a Typical Parking Space	☑	☐	See the comment section in *Adequate Parking and Maneuvering* below.	§05.03, of Art. 06
Parking Table	☑	☐	Provide parking table indicating the total number of required parking spaces by use, the total number of required handicapped parking spaces and the total parking provided.	§05.01, of Art. 06
Handicap Parking Spaces Shown	☑	☐		§05.04, of Art. 06
Adequate Parking	☑	☐	*Reference Table 3 of Article VI.*	Table 5, Art. 06
Adequate Parking and Maneuvering	☑	☐	All parking spaces and aisle dimensions shall conform to the off-street parking requirements in section 2.19 of the City's Standards of Design and Construction *(Check w/ the Engineering Department)*.	§05.03.C, of Art. 06
Adequate Loading Area	☑	☐	Loading spaces shall be a minimum of 12 feet in width, 65 feet in length, and 14 feet in height except as may otherwise be approved by the city engineer *(Art. VI 6.5 Loading Requirements)*.	§06.04, of Art. 06
Adequate Loading Maneuvering	☑	☐	It is also the purpose of this Article to require allocation of sufficient off-street/on-site loading facilities by businesses and industry to ensure that the loading and unloading of vehicles will not interfere with traffic flow or block roadways or fire lanes.	§01.02, of Art. 06
Type and Depth of Paving Material	☑	☐	Indicate the type and depth of the paving material and provide a detail or cut-sheet. All required parking and loading areas shall be constructed of concrete, but may have a surface treatment of brick, stone or other similar material.	§03.02, of Art. 06

2.3 SITE PLAN: SIGNAGE

Requirements	✓= OK	N/A	Comments	UDC Reference
NOTE: *All signage shall conform to Chapter 32 of the Rockwall Municipal Code of Ordinance, unless otherwise specified in an Overlay District or Planned Development District with specific signage requirements.*				

Proposed or Existing Signage	☐	☑	Indicate the location and type of all proposed and/or existing signage on the site plan. Additionally, provide a detail or cut-sheet showing the elevations, lighting and dimensions of the proposed signage.	§06.02.F, of Art. 05

2.4 SITE PLAN: SCREENING

Requirements	✓= OK	N/A	Comments	UDC Reference
Indicate the Type and Location of any Existing and/or Proposed Fences	☐	☑	Label the height and type of fence proposed or existing.	§08.02.F, of Art. 08
Utility Equipment Screening (Pad or Ground Mounted)	☑	☐	Pad mounted utility equipment, and air conditioning units, shall be screened from horizontal view from any adjacent public street and from any adjacent property. Utility equipment and air conditioning units shall be screened utilizing plantings, berms, or walls matching the main structure.	§01.05.C, of Art. 05
Utility Equipment Screening (Roof Mounted)	☐	☑	All buildings must be designed such that no roof mounted mechanical equipment, HVAC, or satellite dishes shall be visible from any direction.	§01.05.C, of Art. 05
Above Ground Storage Tanks	☐	☑	Aboveground storage tanks shall be screened utilizing walls matching the main structure. Screening plans for above ground storage tanks shall generally conform to the diagram below (i.e. incorporate primary screening – screening wall -- and secondary screening) and be approved by the Planning and Zoning Commission in conjunction with a site plan.	§01.05.D, of Art. 05
Dumpster Screening	☑	☐	Trash/Recycling enclosures shall be four (4) sided. These receptacles shall be screened by a minimum six (6) foot, solid masonry dumpster enclosure that utilizes the same masonry materials as the primary building and incorporates an opaque, self-latching gate. Dumpster storage should be located to the rear of the buildings with proper access. Trash dumpster shall not be located in any required parking space and shall allow proper access by service trucks. The minimum enclosure area shall be 12'x10'. A minimum of 6" bollards will be required at potential impact zones and the pad site shall be paved to city standards.	§01.05.B, of Art. 05
Outside Storage	☐	☑		
Off-Street Loading Dock Screening	☐	☑	Off-street loading docks must be screened from all public streets and any residential district that abuts or is directly across a public street or alley from the lot. The screening must be at least six feet in height and may be provided by using a masonry fence, berms, plantings or a combination of the above.	§01.05.A, of Art. 05
Residential Adjacency Standards	☐	☑	The director may require wing walls, landscape screens, changes in building orientation, and/or other architectural elements to minimize the impact of uses adjacent to residential property within 150 feet (also reference *Art. VIII 5.2*).	§01.06, of Art. 05

3.1 LANDSCAPE PLAN

Requirements	✓= OK	N/A	Comments	UDC Reference
Provide Site Data Note: see site plan for dimensional control	☑	☐	Provide the same site data information required in Section *2.1 Site Plan: Miscellaneous and Density and Dimensional Requirements* of this checklist.	See Sec. 2.1 of this checklist
Impervious Area vs. Landscape/Open Space Area Provided and Required (As Per Zoning District)	☑	☐	Indicate the applicable zoning district percentage of landscaping required and provided, and the impervious area vs. the amount of landscaping and open spaces required and provided.	§01.01.B, of Art. 05
Landscape Table	☑	☐	Provide a landscape table showing plant materials, quantities, size and spacing for existing and proposed landscaping. Complete description of plant materials shown on the plan, including names, locations, qualities, container or caliper sizes at installation, heights, spread, and spacing requirements should also be listed on the plan.	§05.03.B, of Art. 08
Indicate all Landscaping	☑	☐	Indicate the locations of all existing and proposed landscaping.	§05.03.B, of Art. 08
Location of Water Courses and Significant Drainage Features	☑	☐	Indicate the locations of all existing and/or proposed water courses and the location of any existing and/or proposed significant drainage features.	-
Indicate all Landscape Buffers	☑	☐	Indicate the locations and dimensions of the required landscape buffers.	§05.01, of Art. 08

Acceptable Landscape Materials:				Sec. 04., of Art. 08
✓ Trees allowed in Street Landscape Buffers	☑	☐	Cedar Elm, Texas Red Oak, Homestead Elm, Lace Bark Elm, Bald Cypress, Chinese Pistachio, October Glory Maple, Pecan, Texas Ash, Live Oak, Chinquapin Oak, and Burr Oak (Understory Trees: Texas Redbud, Mexican Plum, Downy Hawthorn, Wax Myrtle, Yaupon, and Deciduous Yaupon)	Appendix C
✓ Trees not allowed in Landscape Buffers	☑	☐	Silver Maple, Box Elder, Mimosa, Catalpa, Hackberry, Sugarberry, Honey Locust, Tulip Tree, Chinaberry, Sycamore, Cottonwood, Willows, American Elm, Siberian Elm, Jerusalem Thorn/Petuma, Bois D'Arc, Flowering Crabapple Tree, Ginko Tree, Peach/Plum, Mulberry, Texas Mountain Laurel, Lilac Chaste Tree, and Pine Tree.	Appendix C
Protected Trees (That Will Remain On-Site)	☑	☐	Indicate the location and provide a description by type and size of all existing protected trees (4" or larger) proposed to be retained. Prior to any construction or land development, the developer shall clearly mark all protected and feature trees with an aluminum tag -- indicating the trees relationship to the treescape plan -- and flag (i.e. bright fluorescent red vinyl tape). In those instances where a protected tree is so close to the construction area that construction equipment could possibly damage the tree, a protective fence shall be required.	§07.01, of Art. 09
Parking Lot Landscaping	☑	☐	Complete description of landscaping and screening to be provided in or near off-street parking and loading areas, including the information as to the amount (in sq. ft.) of landscape area to be provided internal to parking areas, the total square footage included in the parking area, and the number and location of required off-street parking and loading spaces.	§05.03.E, of Art. 08
Location of all Site Amenities	☑	☐	Identify the size, height, location, and material of proposed seating, lighting, planter's sculptures, water features and landscape paving and other public amenities.	-
Identify Visibility Triangles	☐	☑	Identify visibility triangles on all lots for all driveway intersections and public streets.	§01.08, of Art. 05
Landscape Buffer - Street Trees	☑	☐	Large trees (a species which normally reaches a height of 30 feet or more upon maturity) shall be provided in the required street landscape buffer in numbers equal to one (1) tree for every 50 feet of street frontage.	§05.01, of Art. 08
Tree Locations	☑	☐	Trees must be planted at least five (5) feet from water, sewer and storm sewer lines.	§05.03.E, of Art. 08
Irrigation Requirements Note	☑	☐	Provide note indicating irrigation will meet requirements of UDC.	§05.04, of Art. 08
Hydro mulch (or non-sod option)	☑	☐	The developer shall establish grass and maintain the seeded area, including watering, until a "Permanent Stand of Grass" is obtained at which time the project will be accepted by the City. A "Stand of Grass" shall consist of 75% to 80% coverage and a minimum of one-inch (1") in height as determined by the City.	Sec. 4.2, Coverage, Engr Standards of Design and Construction
Rights-of-Way & Landscape Buffers	☑	☐	All landscape buffers and public right-of-way located adjacent to a proposed development shall be improved with grass (i.e. sod -- hydro mulch shall be prohibited in these areas) prior to the issuance of a Certificate of Occupancy (CO).	§05.03.G, of Art. 08

Note: both access drives are existing and are to remain.

4.1 TREESCAPE PLAN

Requirements	✓= OK	N/A	Comments	UDC Reference
Provide Site Data	☑	☐	Provide the same site data information required in Section *2.1 Site Plan: Miscellaneous and Density and Dimensional Requirements* of this checklist.	See Sec. 2.1 of this checklist
Buildings	☑	☐	Indicate the location of all existing or proposed structures, and/or the building pads as shown on the grading plan.	§03.01.A, of Art. 09
Indicate all Site Elevations, Grades, Major Contours and the Limits of Construction	☑	☐		§03.01.C, of Art. 09

Note: see site plan for dimensional control.

Protected Trees (To Remain On Site)	☑	☐	Indicate the location and provide a description by type and size of all existing protected trees (4" or larger) proposed to be retained. Such trees shall be marked and a drip line of said tress shall be protected prior to and during all construction, including dirt work.	§03.01.E, of Art. 09
Protected Trees (To be Removed from the Site)	☑	☐	Indicate the location of all protected trees (4" or larger) that are to be removed from the site and the proposed locations of all replacement trees.	§03.01.F, of Art. 09
Treescape Table	☑	☐	Provide a table showing the total inches of trees to be removed and the total inches of trees to be replaced.	§03.01.G, of Art. 09

5.1 PHOTOMETRIC AND LIGHTING PLANS

Note: existing site lighting to remain, no additional site lighting it proposed

Requirements	✓= OK	N/A	Comments	UDC Reference
Provide Site Data Table	☐	☑	Provide the same site data information required in Section *2.1 Site Plan: Miscellaneous and Density and Dimensional Requirements* of this checklist.	See Sec. 2.1 of this checklist -
Indicate Lighting Levels (in Foot Candles [FC])	☐	☑	Show lighting levels in foot-candles (FC) measured throughout the site and extended to all property lines of the subject property.	§03.03, of Art. 07
Adjacent Property with Common Lot Lines:				
✓ Residential Use	☐	☑	The allowable maximum light intensity measured at the property line of a residential property shall be 0.2 of one foot candle.	§03.03.B, of Art. 07
✓ Commercial Use	☐	☑	The allowable maximum light intensity measured at the property line of a non-residential property shall be 0.2 of one foot candle. *Subject to requirements in Art. VII 3.3.C.*	§03.03.C, of Art. 07
Under-Canopy Lighting	☐	☑	Under canopy lighting (i.e. fuel stations, drive through lanes and covered parking structures) shall not exceed 35 foot candles (with the exception below).	§03.03.E.1, of Art. 07
Lighting for Motor Vehicle Dealerships	☐	☑	Shall not exceed 0.3 of one foot candle within the front yard of the development. The remainder will comply with the 0.2 of one foot candle.	§03.03.E.2, of Art. 07
Lighting in Parking Areas	☐	☑	The maximum outdoor maintained, computed and measured illumination level within any nonresidential development shall not exceed 20 FC outdoors at any point on the site, with a maximum of 0.2 FC at the property line. (Exceptions: (1) under canopy lighting and (2) motor vehicle dealerships)	§03.03.G, of Art. 07
Building and Pole Mounted Lighting	☐	☑	Indicate the location and type of all exterior lighting, including pole mounted, wall-mounted, signage, etc.	§03.03.E, of Art. 07
Indicate the Mounting Height for all Proposed Light Fixtures	☐	☑	No light pole, base or combination thereof shall exceed 30 feet, unless further restricted within an Overlay District.	§03.03.D of Art. 07
Indicate the Wattage of all Light Sources	☐	☑	Provide lighting cut sheets that indicates the wattage for each exterior lighting fixture. Light sources (e.g. light bulbs) shall be oriented down and toward the center of the site or shielded so as to not be visible from the property line.	§03.03.A, of Art. 07
Proposed Light Fixtures	☐	☑	Provide elevation drawings and/or cut-sheets of proposed light fixtures on/with photometric plan.	§03.03, of Art. 07

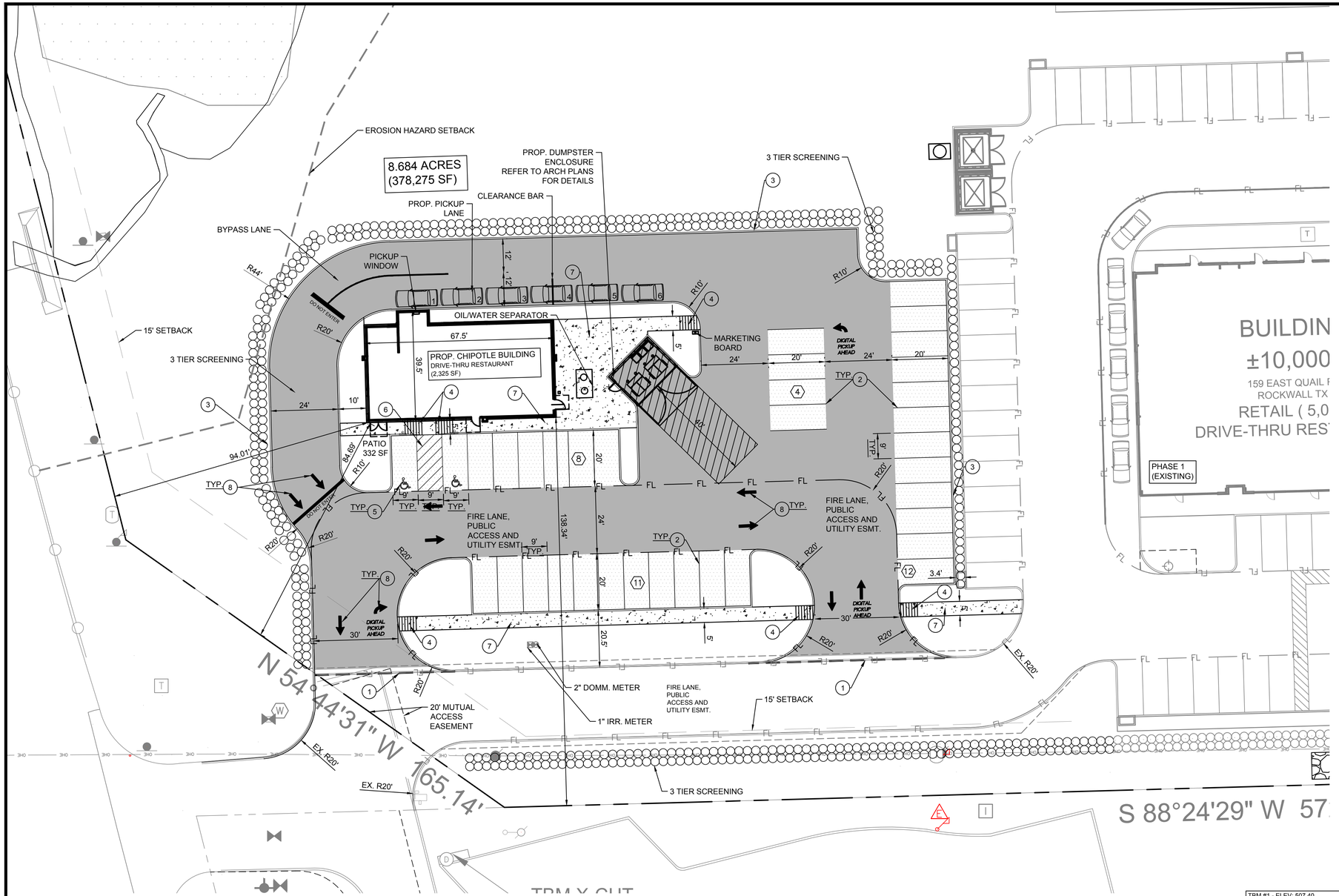
6.1 BUILDING ELEVATIONS: NON-INDUSTRIAL

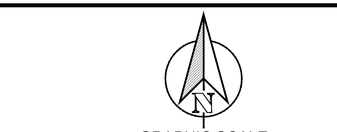
Requirements	✓= OK	N/A	Comments	UDC Reference
Provide Exterior Elevations	☑	☐	North South East West (Circle all that apply)	-
Indicate Exterior Elevations Adjacent to Public Right-of-Way	☑	☐	North South East West (Circle all that apply)	-
Minimum 90% Masonry Requirement *OVERLAY DISTRICTS ONLY*	☑	☐	Exterior walls should consist of 90% masonry materials excluding doors and windows.	§06.02.C, of Art. 05
Indicate Amount and Location of the Minimum 20% Stone Requirement *OVERLAY DISTRICTS ONLY*	☑	☐	Applies to facades that are visible from a public right-of-way and/or open space.	§06.02.C, of Art. 05
Indicate the Surface Area of Each Facade	☑	☐	Indicate the surface area (square feet) of each façade and the percentage and square footage of each material used on that façade.	§04.01, of Art. 05
Proposed Building Materials	☑	☐	Specifications and description of all proposed building materials, on all proposed buildings.	§04.01, of Art. 05
Indicate the Roofing Materials and Color	☑	☐		

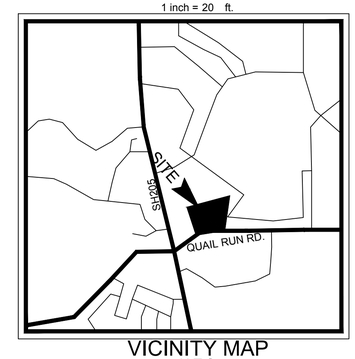
Indicate Parapet Wall Height **(If Applicable, finish the interior side of the parapet wall)	☑	☐	If applicable indicate the parapet wall by dashing in the top of roof deck. **Projecting elements and parapets that are visible from adjacent properties or public right-of-way shall be finished on the interior side using the same materials as the exterior facing wall.	§04.01, of Art. 05
Indicate all Roof Mounted Mechanical Equipment (If Applicable)	☑	☐	If applicable indicate any proposed roof mounted mechanical equipment and indicate how these will be screened from view.	§01.05.C, of Art. 05
Indicate Any Additional Design Elements Proposed (If Applicable)	☑	☐	Indicate any additional design elements for the base, walls, or parapets (such as cornice, arcades, and covered walkways/windows). Be sure to include the location, size, color, and material of any proposed structure.	
Indicate Building Height(s)	☑	☐	The height of the building shall be measured from the average elevation of the finished grade along the front of the building to the highest point of the roof or parapet of the building if it is a flat, mansard or shed roof; or to the midpoint of the roof if it is gable, hip or gambrel roof.	§07.03 of Art. 05
Minimum Standards for Articulation:				
Primary Facades (i.e. facades visible from a public ROW, open space/green space, public/private park, and or residential zoning district or residentially used property)	☑	☐	1. Wall Height [**H**] = **H** 2. Wall Length [**L**] = 3 x **H** 3. Secondary Entry/Arch. Element Length = 25% x **L** 4. Wall Projection = 25% x **H** 5. Primary Entry/Arch. Element Width = 2 x (25% x **L**) 6. Projection Height = 25% x **H** 7. Primary Entry/Arch. Element Length = 2 x (25% x **L**)	§04.01.C.1, of Art. 05
Secondary Facades	☑	☐	1. Wall Height [**H**] = **H** 2. Wall Length [**L**] = 3 x **H** 3. Secondary Entry/Arch. Element Length = 15% x **L** 4. Secondary Entry/Arch. Element Width = 15% x **H** 5. Projection Height = 15% x **H**	§04.01.C.2, of Art. 05

6.2 BUILDING ELEVATIONS: INDUSTRIAL

Requirements	✓= OK	N/A	Comments	UDC Reference
NOTE: *Industrial buildings are subject to all the elements listed in Section 6.1 Building Elevations: Non-Industrial with the exception of the following standards.*				
Minimum 90% Masonry Requirement	☐	☑	Exterior walls should consist of 90% masonry materials excluding doors and windows.	§05.01.A.1, of Art. 05
Indicate Amount and Location of the Minimum 20% Stone Requirement	☐	☑	Applies to facades that are visible from a public right-of-way and/or open space.	§05.01.A.1.a.1, of Art. 05
Minimum Standards for Articulation:				
Primary Facades (i.e. facades visible from a public ROW, open space/green space, public/private park, and or residential zoning district or residentially used property)	☐	☑	1. Wall Height [**H**] = **H** 2. Wall Length [**L**] = 4 x **H** 3. Wall Projection = 25% x **H** 4. Entry/Arch. Element Length = 33% x **L** 5. Projection Height = 25% x **H** 6. Entry/Arch. Element Width = 2 x (25% x **H**)	§05.01.C.1, of Art. 05
Secondary Facades	☐	☑	1. Wall Height [**H**] = **H** 2. Wall Length [**L**] = 3 x **H** 3. Entry/Arch. Element Length = 15% x **L** 4. Entry/Arch. Element Width = 15% x **H** 5. Projection Height = 15% x **H**	§05.01.C.2, of Art. 05







VICINITY MAP
N.T.S.

CONSTRUCTION SCHEDULE	
	PROPOSED STANDARD DUTY CONCRETE PAVEMENT
	PROPOSED HEAVY DUTY CONCRETE PAVEMENT
	PROPOSED SIDEWALK CONCRETE PAVEMENT
	PROPERTY LINE
	PROPOSED CONCRETE CURB AND GUTTER
FL	PROPOSED FIRE LANE, PUBLIC ACCESS ADN UTILITY EASEMENT
	PROPOSED SAWCUT
4	PARKING COUNT

CONSTRUCTION SCHEDULE	
1	PROP. FULL DEPTH SAWCUT
2	PROP. 4" PARKING STALL STRIPING COLOR: WHITE (TYP)
3	PROP. CURB & GUTTER
4	PROP. PEDESTRIAN RAMP
5	PROP. HANDICAP SYMBOL
6	PROP. PAVEMENT STRIPING
7	PROP. SIDEWALK
8	PROP. ARROW PAVEMENT STRIPING

PARKING DATA TABLE	
PARKING REQ.	
DRIVE-THRU RESTAURANT (2,325 SF) 1/ 100 SF	24 SPACES
STANDARD PARKING	33 SPACES
ADA PARKING	2 SPACES
PARKING PROVIDED	35 SPACES (2 ADA)

SITE DATA TABLE			
	PHASE 2 (CHIPOTLE)	PHASE 1 (EXISTING)	TOTAL
SITE AREA	8.684 AC (378,275 SF)	8.684 AC (378,275 SF)	8.684 AC (378,275 SF)
ZONING	PD-70	PD-70	PD-70
PROPOSED USE	DRIVE-THRU RESTAURANT	RETAIL/ DRIVE-THRU RESTAURANT	RETAIL/ DRIVE-THRU RESTAURANT
BUILDING SIZE	2,325 SF	BUILDING B- 10,000 SF BUILDING C- 10,OOO SF	20,325 SF
PATIO AREA	332 SF	2,777 SF	3,109 SF
LOT COVERAGE	.06 %	5.2 %	5.26 %
FLOOR TO AREA RATIO	0.00 : 1	0.05 : 1	0.06 :1
BUILDING STORIES	1 STORY	1 STORY	1 STORY
TOTAL IMPERVIOUS	29,064 SF (0.8%)	116,406 SF (30.8%)	145,138 SF (38.3%)
OPEN SPACE	8.62 AC (92 %)	6.04 AC (69.2%)	5.4 AC (61.7 %)

TBM #1 - ELEV: 507.40
AN "X" CUT SET APPROXIMATELY 44.2' SOUTH AND 46.9' WEST FROM THE SOTUH EAST PROPERTY CORNER ALONG QUAL RD.

TBM #2 - ELEV: 489.60
AND "X" CUT SET APPROXIMATELY 16.6' SOUTH AND 18.6' WEST FROM THE SOTUWEST PROPERTY CORNER ALONG QUAL RD.

TBM #3 - ELEV: 486.4
AND "X" CUT SET APPROXIMATELY 176.7' SOUTH AND 103.1' EAST FROM THE SOTUH EAST PROPERTY CORNER ALONG QUAIL RD.

ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN.

NOTES:

1. A SEPARATE SIGNAGE PERMIT IS REQUIRED BY THE CITY OF ROCKWALL.
2. ALL WALLS 3' IN HEIGHT OR GREATER SHALL BE DESIGNED BY AN ENGINEER, LICENSED IN THE STATE OF TEXAS.
3. ALL WALLS MUST BE ROCK OR STONE FACE. NO WALLS SHALL BE SMOOTH CONCRETE.
4. NO TREES SHALL BE PLANTED WITHIN 10' OF NON-STEEL ENCASED PUBLIC UTILITIES.
5. SOD MUST BE LAID WITHIN ALL DISTURBED R.O.W. BEFORE ACCEPTANCE OF PROJECT.

DUWEST ROCKWALL, TX

LEGAL DESCRIPTION AND OR ADDRESS:

STONE CREEK BALANCE LTD
ABSTRACT. NO 131
8.684 AC (378,275 SF)

OWNER:
DuWEST REALTY, LLC
4403 N.CENTRAL EXWAY SUITE #200
DALLAS, TX 75025
CONTACT: BOWEN HENDRIX
PH: 214.918.1804

APPLICANT:
CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
PH: 817.281.0572

CASE NUMBER

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING AND ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____.

WITNESS OUR HANDS THIS ____ DAY OF _____.

PLANNING AND ZONING COMMISSION, CHAIRMAN

DIRECTOR OF PLANNING AND ZONING

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
1903 CENTRAL DR, SUITE #406
BEDFORD, TX 76021
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM

PRELIMINARY
FOR REVIEW ONLY
Not for construction purposes.
CLAYMOORE ENGINEERING
ENGINEERING AND PLANNING CONSULTANTS
Engineer DREW DONOSKY
P.E. No. 125651 Date 10/19/2022

DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

CITY SITE PLAN

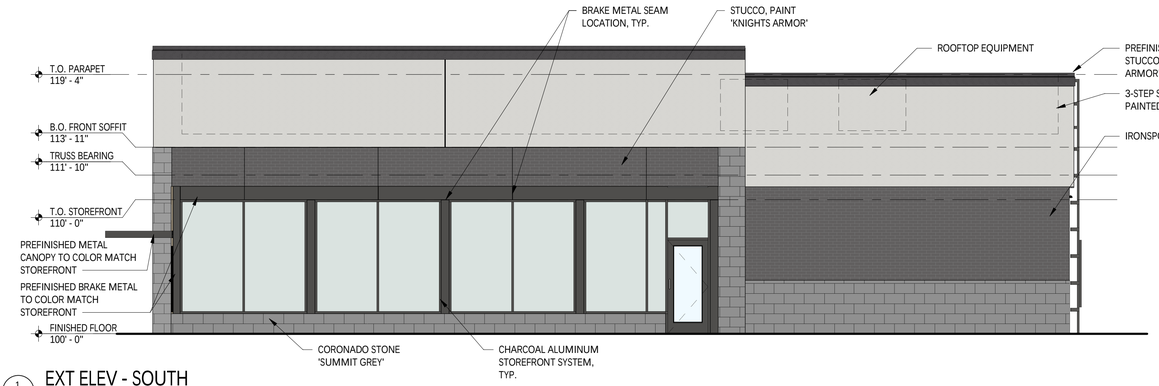
DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	10/19/2022

SHEET
SP-1

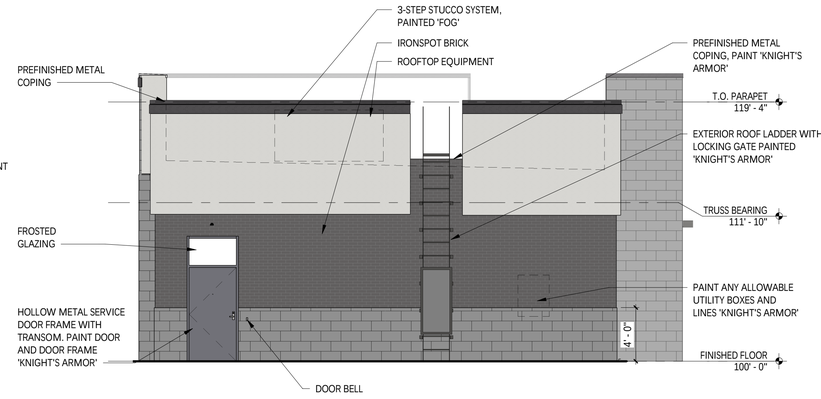
File No. 2022-002

CASE # Z2022-042

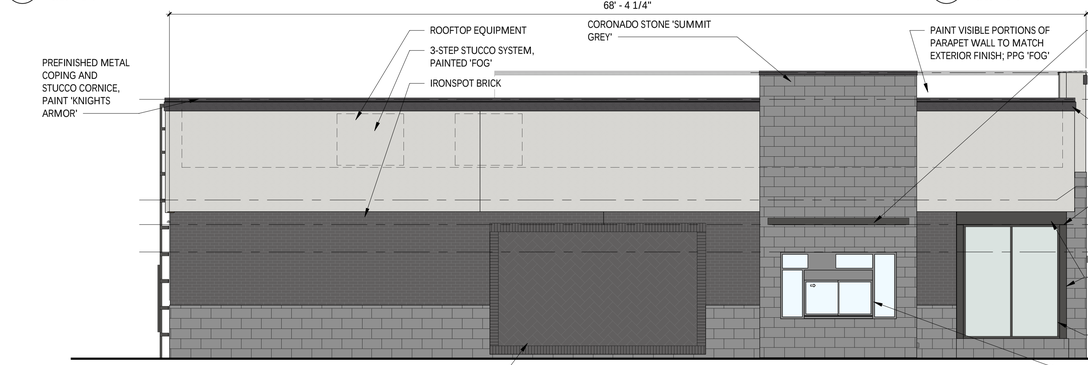
PLOTTED BY: LYNN ROWLAND
PLOT DATE: 10/19/2022 1:36 PM
LOCATION: Z:\PROJECTS\PROJECTS\2022-175 DUWEST ROCKWALL PH. 2\CADD\SHEETS\SP-1 SITE PLAN.DWG
LAST SAVED: 10/12/2022 8:02 AM



1 / F000 EXT ELEV - SOUTH
3/16" = 1'-0"



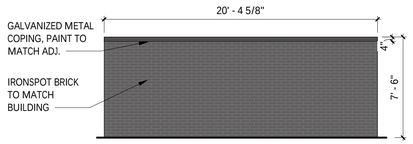
3 / F000 EXT ELEV - WEST
3/16" = 1'-0"



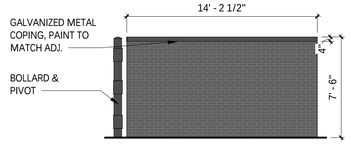
2 / F000 EXT ELEV - EAST
3/16" = 1'-0"

4 / F000 EXT ELEV - NORTH
3/16" = 1'-0"

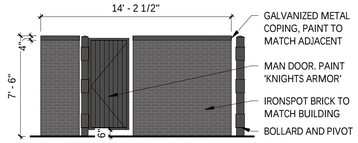
IRONSPOT BRICK HERRINGBONE ACCENT WALL



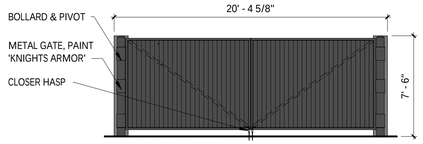
10 / F000 DUMPSTER ELEVATION
3/16" = 1'-0"



11 / F000 DUMPSTER ELEVATION
3/16" = 1'-0"

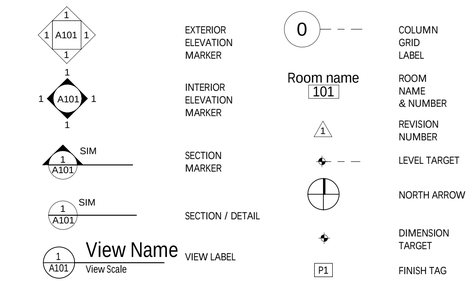


9 / F000 DUMPSTER ELEVATION
3/16" = 1'-0"



8 / F000 DUMPSTER ELEVATION
3/16" = 1'-0"

SYMBOLS LEGEND
12" = 1'-0"



GENERAL NOTES

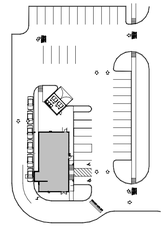
1. THIS FACADE PLAN IS FOR CONCEPTUAL PURPOSES ONLY. ALL BUILDING PLANS REQUIRE REVIEW AND APPROVAL BY DEVELOPMENT SERVICES.
2. ALL MECHANICAL UNITS SHALL BE SCREENED FROM PUBLIC VIEW AS REQUIRED BY THE ZONING ORDINANCE.
3. WHEN PERMITTED, EXPOSED UTILITY BOXES AND CONDUITS SHALL BE PAINTED TO MATCH THE BUILDING.
4. ALL SIGNAGE AREAS AND LOCATIONS ARE SUBJECT TO APPROVAL BY DEVELOPMENT SERVICES.
5. AN ONSITE MOCKUP OF THE BUILDING MATERIALS TO BE USED ON THE STRUCTURE SHALL BE INSTALLED AND REVIEWED BY THE PLANNING DIVISION. MATERIALS SHALL NOT BE PLACED ONT HE STRUCTURE UNTIL A GREEN TAG IS RECEIVED BY THE PLANNING DIVISION.
6. AN APPROVED FACADE PLAN SHALL BE POSED ONSITE AT ALL TIMES.

FINISH MATERIALS

STONE		**CORONADO STONE** SUMMIT GREY VENEER
BRICK		**ENDICOTT IRONSPOT** DARK IRONSPOT
STUCCO		3-STEP STUCCO PPG 'FOG'
MT-01		METAL PPG 'KNIGHTS ARMOR'
STRFNT		**KAWNEER** PERMAFLOUR CHARCOAL

NOTE: THREE COAT STUCCO IS APPLIED IN THREE LAYERS. 3/8-INCH THICK SCRATCH COAT, 3/8-INCH THICK BROWN COAT, AND APPROXIMATE 1/8 INCH THICK FINISH COAT. THE APPROXIMATELY 7/8-INCH THREE COAT SYSTEM IS APPLIED OVER AN APPROVED WEATHER-RESISTIVE BARRIER AND METAL LATH EITHER BY HAND USING A TROWEL OR BY MACHINE APPLICATION

KEY - SITE PLAN



0 8' 16' 24' 32'
Scale: 3/16" = 1'-0"

MATERIAL CALCULATION										
	NORTH		EAST		SOUTH		WEST		TOTAL	
MATERIAL	S.F.	%	S.F.	%	S.F.	%	S.F.	%	S.F.	%
TOTAL ELEVATION AREA	1319	100	762	100	1393	100	813	100	4287	100
NON-GLAZED DOORS AND WINDOWS	0	0%	28	3.67%	0	0%	0	0%	28	0.78%
GLAZED DOORS AND WINDOWS	90	6.82	9	1.18%	326	23.40%	255	31.37%	680	15.86%
TOTAL (WITHOUT GLAZED/NON-GLAZED...	1229	93.18	753	98.82%	1067	76.60%	558	68.63%	3607	84.14%
STONE	412	33.52%	232	30.81%	215	20.15%	180	32.26%	1039	28.81%
IRON SPOT BRICK - TO MATCH ADJACENT BUILDING	380	30.92%	237	31.47%	287	26.90%	64	11.47%	968	26.84%
STUCCO (3 STEP)	420	34.17%	250	33.20%	500	46.86%	272	48.75%	1442	39.98%
METAL ACCENT	17	1.38%	6	0.80%	65	6.09%	42	31.37%	130	3.60%

RESTAURANT WITH DRIVE-THRU
STONE CREEK BALANCE LTD
ABSTRACT NO 131

FACADE PLAN: #
SUBMITTAL DATE: 12/12/2022

ARCHITECT:
ROGUE ARCHITECTS
513 MAIN STREET, STE 300
FORT WORTH, TX 76102
CONTACT: ASHLEY MORELAND
T: (817) 820-0433

OWNER:
DUWEST REALTY
4403 N. CENTRAL EXPWY, #200
DALLAS, TX 75205
CONTACT: BOWEN HENDRIX
T: (214) 918-1804

ENGINEER
CLAYMOORE ENGINEERING
903 CENTRAL DRIVE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
T: (817) 281-0572

Consultant:
ARCHITECT OF RECORD
ROGUE ARCHITECTS
513 MAIN STREET, SUITE 300
FORT WORTH, TEXAS 76102
(817) 820-0433

SEAL

FACADE PLAN - 12/12/2022

DUWEST
CREATING, ENHANCING & PROTECTING VALUE

ROCKWALL NORTH SHELL
SH205 & QUAIL RUN ROAD
ROCKWALL, TX

Issue Record:

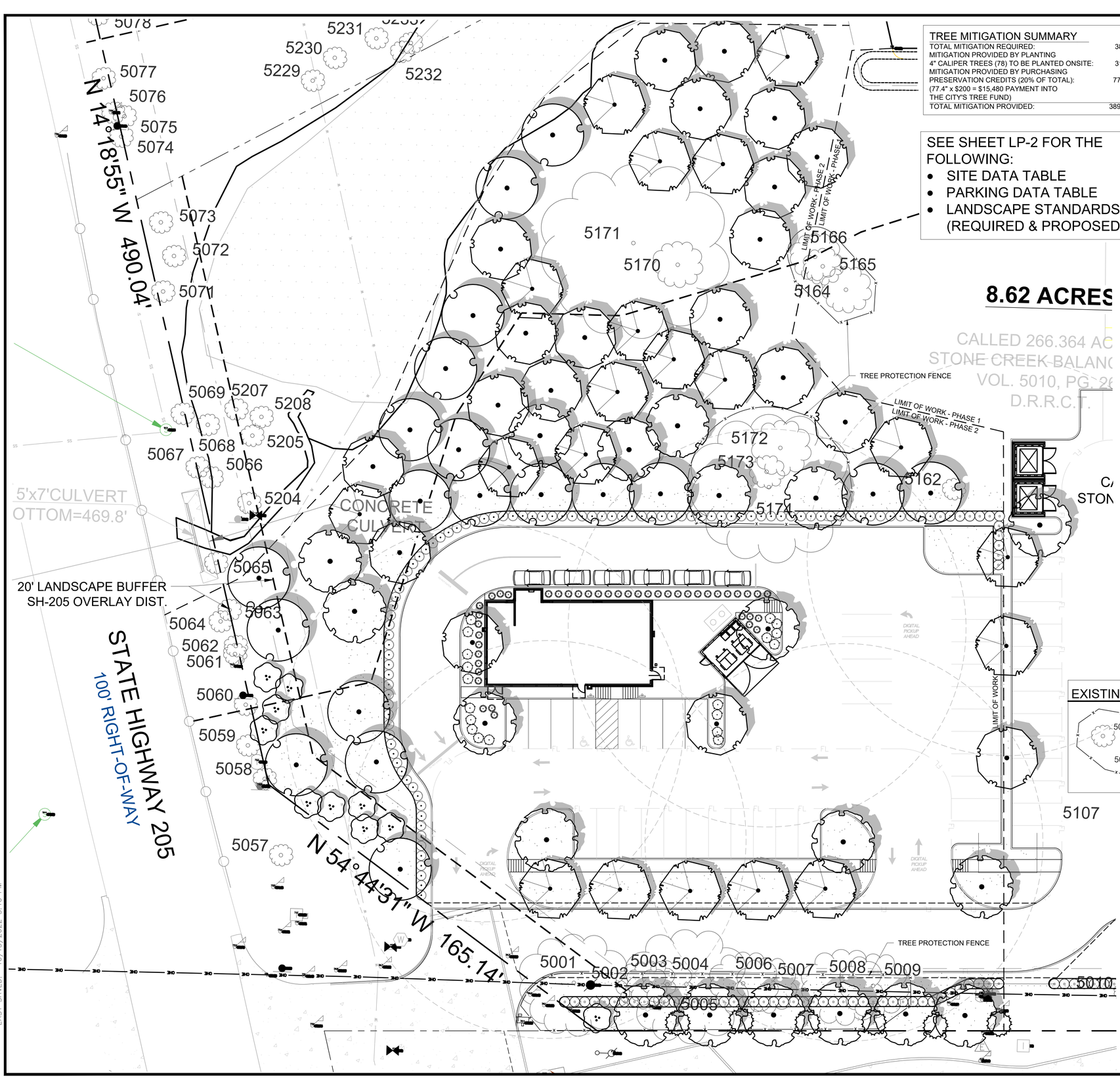
Revisions:

Drawn: T. GRANDORF
Checked: A. MORELAND

Project No.
ROGUE #22-0547

Contents:
FACADE PLAN

F000



TREE MITIGATION SUMMARY

TOTAL MITIGATION REQUIRED:	387"
MITIGATION PROVIDED BY PLANTING 4" CALIPER TREES (78) TO BE PLANTED ONSITE:	312"
MITIGATION PROVIDED BY PURCHASING PRESERVATION CREDITS (20% OF TOTAL): (77.4" x $200 = $15,480 PAYMENT INTO THE CITY'S TREE FUND)	77.4"
TOTAL MITIGATION PROVIDED:	389.4"

SEE SHEET LP-2 FOR THE FOLLOWING:
- SITE DATA TABLE
- PARKING DATA TABLE
- LANDSCAPE STANDARDS (REQUIRED & PROPOSED)

PLANT SCHEDULE

CANOPY TREES	QTY	BOTANICAL / COMMON NAME	CAL	SIZE
	20	ACER RUBRUM 'OCTOBER GLORY' OCTOBER GLORY MAPLE	4" CAL.	16'-18' HT
	19	QUERCUS POLYMORPHA MEXICAN WHITE OAK	4" CAL MIN	14`-16` HT
	19	QUERCUS VIRGINIANA LIVE OAK	4" CAL MIN	14`-16` HT
	20	ULMUS CRASSIFOLIA CEDAR ELM	4" CAL.	16`-18` HT

ACCENT TREES	QTY	BOTANICAL / COMMON NAME	CAL	SIZE
	10	CERCIS CANADENSIS EASTERN REDBUD 3-5 STEMS	2" CAL MIN	8` -10` HT
	6	ILEX VOMITORIA YAUPON HOLLY	2" CAL MIN	8` -10` HT

SHRUBS	QTY	BOTANICAL / COMMON NAME	CONT
	43	HESPERALOE PARVIFLORA RED YUCCA	3 GAL
	90	ILEX CORNUTA 'DWF. BURFORD' DWARF BURFORD HOLLY	5 GAL
	19	LANTANA X `NEW GOLD` NEW GOLD LANTANA	3 GAL
	57	MYRTUS COMMUNIS 'DON'S DWARF' DON'S DWARF WAX MYRTLE	5 GAL

GROUND COVER	QTY	BOTANICAL / COMMON NAME	CONT
	14,665 SF	CYNODON 'TIFWAY 419' TIFWAY 419 BERMUDA GRASS	SOD

NOTE: THE DEVELOPER SHALL ESTABLISH GRASS AND MAINTAIN THE SODDED AREA, INCLUDING WATERING, UNTIL A PERMANENT STAND OF GRASS IS OBTAINED AT WHICH TIME THE PROJECT WILL BE ACCEPTED BY THE CITY. A STAND OF GRASS SHALL CONSIST OF 75%-80% COVERAGE AND A MINIMUM O F 1" IN HEIGHT AS DETERMINED BY THE CITY.

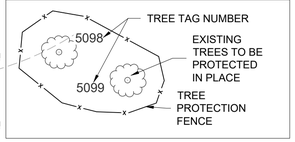
MULCHES

AFTER ALL PLANTING IS COMPLETE, CONTRACTOR SHALL INSTALL 3" THICK LAYER OF 1-1/2" SHREDDED WOOD MULCH, NATURAL (UNDYED), IN ALL PLANTING AREAS (EXCEPT FOR TURF AND SEEDED AREAS). CONTRACTOR SHALL SUBMIT SAMPLES OF ALL MULCHES TO LANDSCAPE ARCHITECT AND OWNER FOR APPROVAL PRIOR TO CONSTRUCTION. ABSOLUTELY NO EXPOSED GROUND SHALL BE LEFT SHOWING ANYWHERE ON THE PROJECT AFTER MULCH HAS BEEN INSTALLED (SUBJECT TO THE CONDITIONS AND REQUIREMENTS OF THE "GENERAL GRADING AND PLANTING NOTES" AND SPECIFICATIONS).

ROOT BARRIERS

THE CONTRACTOR SHALL INSTALL ROOT BARRIERS NEAR ALL NEWLY-PLANTED TREES THAT ARE LOCATED WITHIN FIVE (5) FEET OF PAVING OR CURBS. ROOT BARRIERS SHALL BE "CENTURY" OR "DEEP-ROOT" 24" DEEP PANELS (OR EQUAL). BARRIERS SHALL BE LOCATED IMMEDIATELY ADJACENT TO HARDSCAPE. INSTALL PANELS PER MANUFACTURER'S RECOMMENDATIONS. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR USE ROOT BARRIERS OF A TYPE THAT COMPLETELY ENCIRCLE THE ROOTBALL.

EXISTING TREE LEGEND



DUWEST ROCKWALL, TX

LEGAL DESCRIPTION AND OR ADDRESS:

STONE CREEK BALANCE LTD
ABSTRACT. NO 131
8.684 AC (378,275 SF)

OWNER:
DuWEST REALTY, LLC
4403 N.CENTRAL EXWAY SUITE #200
DALLAS, TX 75025
CONTACT: BOWEN HENDRIX
PH: 214.918.1804

APPLICANT:
CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
PH: 817.281.0572

CASE NUMBER
Z2022-003

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING AND ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____.

WITNESS OUR HANDS THIS ____ DAY OF _____.

PLANNING AND ZONING COMMISSION, CHAIRMAN

DIRECTOR OF PLANNING AND ZONING

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
1903 CENTRAL DR, SUITE #406
BEDFORD, TX 76021
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM

REGISTERED LANDSCAPE ARCHITECT
DARCY R. BRANDON
3423
STATE OF TEXAS

10/13/2022

DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

EVERGREEN DESIGN GROUP
(800) 680-6630
15455 Dallas Pkwy., Ste 600
Addison, TX 75001
www.EvergreenDesignGroup.com

LANDSCAPE PLANTING PLAN

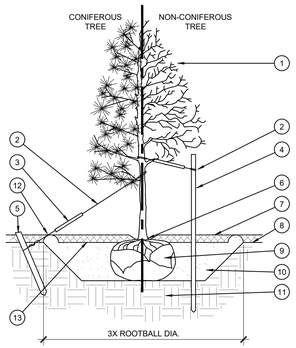
DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	10/13/2022

SHEET
LP-1

File No. 2022-002

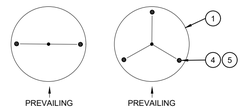
CASE # SP2022-042

PLOTTED BY: DARCY BRANDON
PLOT DATE: 10/13/2022 3:12 PM
LOCATION: C:\USERS\DARCY\DOCUMENTS\DBLA_PROJECTS\2022\EDG\CHIPOLTE DUWEST - ROCKWALL, TX\XREFS\2022-10-10 DUWEST ROCKWALL PHASE 2.DWG
LAST SAVED: 10/13/2022 3:10 PM



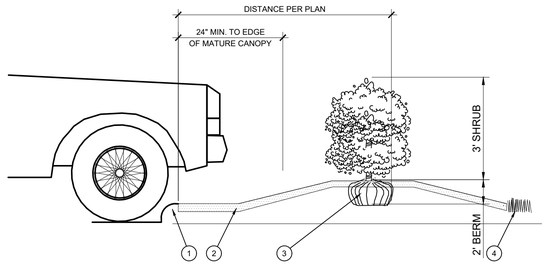
1. TREE CANOPY.
2. CINCH-TIES (24" BOX/2" CAL. TREES AND SMALLER) OR 12 GAUGE GALVANIZED WIRE WITH NYLON TREE STRAPS AT TREE AND STAKE (36" BOX/2.5" CAL. TREES AND LARGER). SECURE TIES OR STRAPS TO TRUNK JUST ABOVE LOWEST MAJOR BRANCHES.
3. 24" X 3/4" P.V.C. MARKERS OVER WIRES.
4. GREEN STEEL T-POSTS. EXTEND POSTS 12" MIN. INTO UNDISTURBED SOIL.
5. PRESSURE-TREATED WOOD DEADMAN, TWO PER TREE (MIN.). BURY OUTSIDE OF PLANTING PIT AND 18" MIN. INTO UNDISTURBED SOIL.
6. TRUNK FLARE.
7. MULCH, TYPE AND DEPTH PER PLANS. DO NOT PLACE MULCH WITHIN 6" OF TRUNK.
8. FINISH GRADE.
9. ROOT BALL.
10. BACKFILL. AMEND AND FERTILIZE ONLY AS RECOMMENDED IN SOIL FERTILITY ANALYSIS.
11. UNDISTURBED NATIVE SOIL.
12. 4" HIGH EARTHEN WATERING BASIN.
13. FINISH GRADE.

STAKING EXAMPLES (PLAN VIEW)



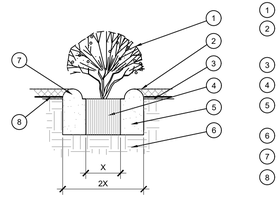
NOTES:
1. SCARIFY SIDES OF PLANTING PIT PRIOR TO SETTING TREE.
2. REMOVE EXCESS SOIL APPLIED ON TOP OF THE ROOTBALL THAT COVERS THE ROOT FLARE. THE PLANTING HOLE DEPTH SHALL BE SUCH THAT THE ROOTBALL RESTS ON UNDISTURBED SOIL, AND THE ROOT FLARE IS 2"-4" ABOVE FINISH GRADE.
3. FOR B&B TREES, CUT OFF BOTTOM 1/3 OF WIRE BASKET BEFORE PLACING TREE IN HOLE, CUT OFF AND REMOVE REMAINDER OF BASKET AFTER TREE IS SET IN HOLE. REMOVE ALL NYLON TIES, TWINE, ROPE, AND OTHER PACKING MATERIAL. REMOVE AS MUCH BURLAP FROM AROUND ROOTBALL AS IS PRACTICAL.
4. REMOVE ALL NURSERY STAKES AFTER PLANTING.
5. FOR TREES 36" BOX/2.5" CAL. AND LARGER, USE THREE STAKES OR DEADMEN (AS APPROPRIATE), SPACED EVENLY AROUND TREE.
6. STAKING SHALL BE TIGHT ENOUGH TO PREVENT TRUNK FROM BENDING, BUT LOOSE ENOUGH TO ALLOW SOME TRUNK MOVEMENT IN WIND.

A TREE PLANTING
SCALE: NOT TO SCALE



1. CURB.
2. MULCH LAYER.
3. PLANT.
4. TURF (WHERE SHOWN ON PLAN).

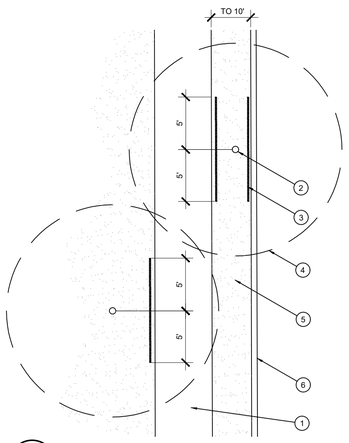
D PLANTING AT PARKING AREA
SCALE: NOT TO SCALE



1. SHRUB, PERENNIAL, OR ORNAMENTAL GRASS.
2. MULCH, TYPE AND DEPTH PER PLANS. PLACE NO MORE THAN 1" OF MULCH WITHIN 6" OF PLANT CENTER.
3. FINISH GRADE.
4. ROOT BALL.
5. BACKFILL. AMEND AND FERTILIZE ONLY AS RECOMMENDED IN SOIL FERTILITY ANALYSIS.
6. UNDISTURBED NATIVE SOIL.
7. 3" HIGH EARTHEN WATERING BASIN.
8. WEED FABRIC UNDER MULCH.

B SHRUB AND PERENNIAL PLANTING
SCALE: NTS

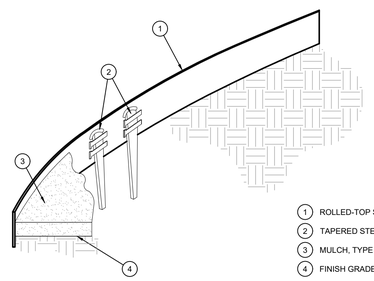
OPEN LANDSCAPE — PARKWAY OR ISLAND



1. TYPICAL WALKWAY OR PAVING
2. TREE TRUNK
3. LINEAR ROOT BARRIER MATERIAL. SEE PLANTING NOTES FOR TYPE AND MANUFACTURER. INSTALL PER MANUFACTURER'S SPECIFICATIONS.
4. TREE CANOPY
5. TYPICAL PLANTING AREA
6. TYPICAL CURB AND GUTTER

NOTES:
1) INSTALL ROOT BARRIERS NEAR ALL NEWLY-PLANTED TREES THAT ARE LOCATED WITHIN FIVE (5) FEET OF PAVING OR CURBS.
2) BARRIERS SHALL BE LOCATED IMMEDIATELY ADJACENT TO HARDSCAPE. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR USE ROOT BARRIERS OF A TYPE THAT COMPLETELY ENCIRCLE THE ROOTBALL.

F ROOT BARRIER - PLAN VIEW
SCALE: NOT TO SCALE



1. ROLLED-TOP STEEL EDGING PER PLANS.
2. TAPERED STEEL STAKES.
3. MULCH, TYPE AND DEPTH PER PLANS.
4. FINISH GRADE.

NOTES:
1) INSTALL EDGING SO THAT STAKES WILL BE ON INSIDE OF PLANTING BED.
2) BOTTOM OF EDGING SHALL BE BURIED A MINIMUM OF 1" BELOW FINISH GRADE.
3) TOP OF MULCH SHALL BE 1" LOWER THAN TOP OF EDGING.

D STEEL EDGING
SCALE: NOT TO SCALE

PARKING DATA TABLE

PARKING REQUIRED	
DRIVE-THRU RESTAURANT (2,325 SF) 1 SPACE / 100 SF	24 SPACES
STANDARD PARKING	33 SPACES
ADA PARKING	2 SPACES
PARKING PROVIDED	
TOTAL PARKING	33 SPACES
ADA PARKING	2 SPACES

SITE DATA TABLE

	PHASE 2 (CHIPOTLE)	PHASE 1 (EXISTING)	TOTAL
SITE AREA	8.684 AC / 378,275 SF	8.684 AC / 378,275 SF	8.684 AC / 378,275 SF
ZONING	PD-70 (Planned Development)	PD-70 (Planned Development) GR (General Retail Dist.)	PD-70
PROPOSED USE	DRIVE-THRU RESTAURANT	RETAIL/DRIVE-THRU RESTAURANT	RETAIL/DRIVE-THRU RESTAURANT
BUILDING SIZE	2,325 SF	BLDG. B - 10,000 SF BLDG. C - 10,000 SF	20,325 SF
PATIO AREA	332 SF	2,777 SF	3,109 SF
LOT COVERAGE	0.06%	5.2%	5.26%
FLOOR AREA RATIO	0.00:1	0.05:1	0.06:1
BUILDING HEIGHT	1-STORY	1-STORY	1-STORY
IMPERVIOUS AREA	29,064 SF (0.8%)	116,406 SF (30.8%)	145,138 SF (38.3%)
OPEN SPACE	8.62 AC (92%)	6.04 AC (69.2%)	5.4 AC (61.7%)

GENERAL GRADING AND PLANTING NOTES

1. BY SUBMITTING A PROPOSAL FOR THE LANDSCAPE PLANTING SCOPE OF WORK, THE CONTRACTOR CONFIRMS THAT HE HAS READ, AND WILL COMPLY WITH, THE ASSOCIATED NOTES, SPECIFICATIONS, AND DETAILS WITH THIS PROJECT.
2. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL EXISTING VEGETATION (EXCEPT WHERE NOTED TO REMAIN).
3. IN THE CONTEXT OF THESE PLANS, NOTES, AND SPECIFICATIONS, "FINISH GRADE" REFERS TO THE FINAL ELEVATION OF THE SOIL SURFACE (NOT TOP OF MULCH) AS INDICATED ON THE GRADING PLANS.
   a. BEFORE STARTING WORK, THE LANDSCAPE CONTRACTOR SHALL VERIFY THAT THE ROUGH GRADES OF ALL LANDSCAPE AREAS ARE WITHIN +/-0.1' OF FINISH GRADE. SEE SPECIFICATIONS FOR MORE DETAILED INSTRUCTION ON TURF AREA AND PLANTING BED PREPARATION.
   b. CONSTRUCT AND MAINTAIN FINISH GRADES AS SHOWN ON GRADING PLANS, AND CONSTRUCT AND MAINTAIN SLOPES AS RECOMMENDED BY THE GEOTECHNICAL REPORT. ALL LANDSCAPE AREAS SHALL HAVE POSITIVE DRAINAGE AWAY FROM STRUCTURES AT THE MINIMUM SLOPE SPECIFIED IN THE REPORT AND ON THE GRADING PLANS, AND AREAS OF POTENTIAL PONDING SHALL BE REGRADED TO BLEND IN WITH THE SURROUNDING GRADES AND ELIMINATE PONDING POTENTIAL.
   c. THE LANDSCAPE CONTRACTOR SHALL DETERMINE WHETHER OR NOT THE EXPORT OF ANY SOIL WILL BE NEEDED, TAKING INTO ACCOUNT THE ROUGH GRADE PROVIDED, THE AMOUNT OF SOIL AMENDMENTS TO BE ADDED (**BASED ON A SOIL TEST**, PER SPECIFICATIONS), AND THE FINISH GRADES TO BE ESTABLISHED.
   d. ENSURE THAT THE FINISH GRADE IN SHRUB AREAS IMMEDIATELY ADJACENT TO WALKS AND OTHER WALKING SURFACES, AFTER INSTALLING SOIL AMENDMENTS, IS 3" BELOW THE ADJACENT FINISH SURFACE, IN ORDER TO ALLOW FOR PROPER MULCH DEPTH. TAPER THE SOIL SURFACE TO MEET FINISH GRADE, AS SPECIFIED ON THE GRADING PLANS, AT APPROXIMATELY 18" AWAY FROM THE WALKS.
   e. ENSURE THAT THE FINISH GRADE IN TURF AREAS IMMEDIATELY ADJACENT TO WALKS AND OTHER WALKING SURFACES, AFTER INSTALLING SOIL AMENDMENTS, IS 1" BELOW THE FINISH SURFACE OF THE WALKS. TAPER THE SOIL SURFACE TO MEET FINISH GRADE, AS SPECIFIED ON THE GRADING PLANS, AT APPROXIMATELY 18" AWAY FROM THE WALKS.
   f. SHOULD ANY CONFLICTS AND/OR DISCREPANCIES ARISE BETWEEN THE GRADING PLANS, GEOTECHNICAL REPORT, THESE NOTES AND PLANS, AND ACTUAL CONDITIONS, THE CONTRACTOR SHALL IMMEDIATELY BRING SUCH ITEMS TO THE ATTENTION OF THE LANDSCAPE ARCHITECT, GENERAL CONTRACTOR, AND OWNER.
4. ALL PLANT LOCATIONS ARE DIAGRAMMATIC. ACTUAL LOCATIONS SHALL BE VERIFIED WITH THE LANDSCAPE ARCHITECT OR DESIGNER PRIOR TO PLANTING. THE LANDSCAPE CONTRACTOR SHALL ENSURE THAT ALL REQUIREMENTS OF THE PERMITTING AUTHORITY ARE MET (I.E., MINIMUM PLANT QUANTITIES, PLANTING METHODS, TREE PROTECTION METHODS, ETC.).
   a. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR DETERMINING PLANT QUANTITIES; PLANT QUANTITIES SHOWN ON LEGENDS AND CALLOUTS ARE FOR GENERAL INFORMATION ONLY. IN THE EVENT OF A DISCREPANCY BETWEEN THE PLAN AND THE PLANT LEGEND, THE PLANT QUANTITY AS SHOWN ON THE PLAN (FOR INDIVIDUAL SYMBOLS) OR CALLOUT (FOR GROUNDCOVER PATTERNS) SHALL TAKE PRECEDENCE.
   b. **NO SUBSTITUTIONS OF PLANT MATERIALS SHALL BE ALLOWED WITHOUT THE WRITTEN PERMISSION OF THE LANDSCAPE ARCHITECT.** IF SOME OF THE PLANTS ARE NOT AVAILABLE, THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT IN WRITING (VIA PROPER CHANNELS).
   c. THE CONTRACTOR SHALL, AT A MINIMUM, PROVIDE REPRESENTATIVE PHOTOS OF ALL PLANTS PROPOSED FOR THE PROJECT. THE CONTRACTOR SHALL ALLOW THE LANDSCAPE ARCHITECT AND THE OWNER/OWNER'S REPRESENTATIVE TO INSPECT, AND APPROVE OR REJECT, ALL PLANTS DELIVERED TO THE JOBSITE.
   REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS FOR SUBMITTALS.
5. THE CONTRACTOR SHALL MAINTAIN THE LANDSCAPE IN A HEALTHY CONDITION FOR 90 DAYS AFTER ACCEPTANCE BY THE OWNER. REFER TO SPECIFICATIONS FOR CONDITIONS OF ACCEPTANCE FOR THE START OF THE MAINTENANCE PERIOD, AND FOR FINAL ACCEPTANCE AT THE END OF THE MAINTENANCE PERIOD.
6. SEE SPECIFICATIONS AND DETAILS FOR FURTHER REQUIREMENTS.

IRRIGATION CONCEPT

1. AN AUTOMATIC IRRIGATION SYSTEM SHALL BE INSTALLED AND OPERATIONAL BY THE TIME OF FINAL INSPECTION. THE ENTIRE IRRIGATION SYSTEM SHALL BE INSTALLED BY A LICENSED AND QUALIFIED IRRIGATION CONTRACTOR.
2. THE IRRIGATION SYSTEM WILL OPERATE ON POTABLE WATER, AND THE SYSTEM WILL HAVE APPROPRIATE BACKFLOW PREVENTION DEVICES INSTALLED TO PREVENT CONTAMINATION OF THE POTABLE SOURCE.
3. ALL NON-TURF PLANTED AREAS SHALL BE DRIP IRRIGATED. SODDED AND SEEDED AREAS SHALL BE IRRIGATED WITH SPRAY OR ROTOR HEADS AT 100% HEAD-TO-HEAD COVERAGE.
4. ALL PLANTS SHARING SIMILAR HYDROZONE CHARACTERISTICS SHALL BE PLACED ON A VALVE DEDICATED TO PROVIDE THE NECESSARY WATER REQUIREMENTS SPECIFIC TO THAT HYDROZONE.
5. THE IRRIGATION SYSTEM SHALL BE DESIGNED AND INSTALLED, TO THE MAXIMUM EXTENT POSSIBLE, TO CONSERVE WATER BY USING THE FOLLOWING DEVICES AND SYSTEMS: MATCHED PRECIPITATION RATE TECHNOLOGY ON ROTOR AND SPRAY HEADS (WHEREVER POSSIBLE), RAIN SENSORS, AND MULTI-PROGRAM COMPUTERIZED IRRIGATION CONTROLLERS FEATURING SENSORY INPUT CAPABILITIES.
6. ALL IRRIGATION SHALL MEET THE REQUIREMENTS OF THE CITY OF ROCKWALL'S UDC (SUBSECTION 05.04, OF ARTICLE 08)

LANDSCAPE STANDARDS

05.01 LANDSCAPE BUFFERS - NON-RESIDENTIAL	
REQ. ABUTTING A PUBLIC RIGHT-OF-WAY:	20' WIDE LANDSCAPE BUFFER W/ GROUND COVER, BERM, AND SHRUBBERY 30" HIGH + 1 CANOPY TREE & 1 ACCENT TREE PER 50 LIN. FEET OF FRONTAGE
ST. HWY 205 OVERLAY DISTRICT: ±246' STREET FRONTAGE	20' WIDE BUFFER REQ. W/ 2 CANOPY + 4 ACCENT TREES PER 100 LIN. FT. OF FRONTAGE; GROUND COVER, BUILT-UP BERM AND SHRUBBERY ALONG ENTIRE FRONTAGE
REQUIRED PLANTING:	5 CANOPY TREES, 10 ACCENT TREES, BERM W/ SHRUBS
PROVIDED 20' BUFFER:	1 EXIST. CANOPY TREES + 4 NEW CANOPY TREES; 10 ACCENT TREES W/ BERM AND SHRUBS
05.02 LANDSCAPE SCREENING	
REQ. HEADLIGHT SCREENING	HEAD-IN PARKING ADJ. TO STREET SHALL INCORP. MIN. 2' BERM W/ MATURE EVERGREEN SHRUBS ALONG ENTIRE PARKING AREAS
SCREENING PROVIDED:	N/A
SCREENING FROM RESIDENTIAL:	N/A
05.03 LANDSCAPE REQUIREMENTS - COMMERCIAL (C) DISTRICT	
TOTAL SITE AREA (CHIPOLTE ONLY):	±64,104 SF
LANDSCAPE AREA REQUIRED TOTAL SITE:	12,821 SF (20%)
LANDSCAPE PROVIDED, TOTAL SITE:	± 27,515 (43%)
LOCATION OF LANDSCAPING:	MIN. 50% OF REQ. LANDSCAPING SHALL BE LOCATED IN THE FRONT OF & ALONG THE SIDE OF BUILDINGS W/ STREET FRONTAGE. 12,821 x 50% = 6,410.5 SF
LANDSCAPE AREAS IN FRONT & SIDES OF BUILDINGS:	14,825 SF (115.6%)
MIN. SIZE OF AREAS	ALL REQ. LANDSCAPING SHALL BE NO LESS THAN 5' WIDE AND A MIN. OF 25 SF IN AREA
DETENTION BASINS	NONE PROPOSED
PARKING LOT LANDSCAPING	MIN. 5% OR 200 SF OF LANDSCAPING, WHICHEVER IS GREATER, IN THE INTERIOR OF PARKING LOT AREA.
PROPOSED PARKING AREA:	±24,630 SF
REQ. PARKING AREA LANDSCAPING:	24,630 x 5% =1,232
PROPOSED PARKING LOT LANDSCAPING:	±2,217 SF (9%)
	REQ. PARKING SPACES MUST BE WITHIN 80' OF A CANOPY TREE TRUNK

DUWEST ROCKWALL

LEGAL DESCRIPTION AND OR ADDRESS:

STONE CREEK BALANCE LTD
ABSTRACT. NO 131
8.684 AC (378,275 SF)

OWNER:
DuWEST REALTY, LLC
4403 N.CENTRAL EXWAY SUITE #200
DALLAS, TX 75025
CONTACT: BOWEN HENDRIX
PH: 214.918.1804

APPLICANT:
CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
PH: 817.281.0572

CASE NUMBER
Z2022-003

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING AND ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____.

WITNESS OUR HANDS THIS ____ DAY OF _____.

_____
PLANNING AND ZONING COMMISSION, CHAIRMAN

_____
DIRECTOR OF PLANNING AND ZONING

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
1903 CENTRAL DR, SUITE #406
BEDFORD, TX 76021
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM

REGISTERED LANDSCAPE ARCHITECT — DARCY R. BRANDON — 3423 — STATE OF TEXAS

10/13/2022

DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

EVERGREEN DESIGN GROUP
(800) 680-6630
15455 Dallas Pkwy., Ste 600
Addison, TX 75001
www.EvergreenDesignGroup.com

LANDSCAPE PLANTING DETAILS & NOTES

DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	10/13/2022

SHEET
LP-2

File No. 2022-002

CASE # SP2022-042

PLOTTED BY: DARCY BRANDON
PLOT DATE: 10/13/2022 3:12 PM
LOCATION: C:\USERS\DARCY\DOCUMENTS\DBLA_PROJECTS\2022\EDG\CHIPOLTE DUWEST - ROCKWALL, TX\XREFS\2022-10-10 DUWEST ROCKWALL PHASE 2.DWG
LAST SAVED: 10/13/2022 3:10 PM

PLANTING SPECIFICATIONS

GENERAL

A. QUALIFICATIONS OF LANDSCAPE CONTRACTOR
   1. ALL LANDSCAPE WORK SHOWN ON THESE PLANS SHALL BE PERFORMED BY A SINGLE FIRM SPECIALIZING IN LANDSCAPE PLANTING.
   2. A LIST OF SUCCESSFULLY COMPLETED PROJECTS OF THIS TYPE, SIZE AND NATURE MAY BE REQUESTED BY THE OWNER FOR FURTHER QUALIFICATION MEASURES.
   3. THE LANDSCAPE CONTRACTOR SHALL HOLD A VALID NURSERY AND FLORAL CERTIFICATE ISSUED BY THE TEXAS DEPARTMENT OF AGRICULTURE, AS WELL AS OPERATE UNDER A COMMERCIAL PESTICIDE APPLICATOR LICENSE ISSUED BY EITHER THE TEXAS DEPARTMENT OF AGRICULTURE OR THE TEXAS STRUCTURAL PEST CONTROL BOARD.

B. SCOPE OF WORK
   1. WORK COVERED BY THESE SECTIONS INCLUDES THE FURNISHING AND PAYMENT OF ALL MATERIALS, LABOR, SERVICES, EQUIPMENT, LICENSES, TAXES AND ANY OTHER ITEMS THAT ARE NECESSARY FOR THE EXECUTION, INSTALLATION AND COMPLETION OF ALL WORK, SPECIFIED HEREIN AND / OR SHOWN ON THE LANDSCAPE PLANS, NOTES, AND DETAILS.
   2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS REQUIRED BY AUTHORITIES HAVING JURISDICTION OVER SUCH WORK, INCLUDING ALL INSPECTIONS AND PERMITS REQUIRED BY FEDERAL, STATE AND LOCAL AUTHORITIES IN SUPPLY, TRANSPORTATION AND INSTALLATION OF MATERIALS.
   3. THE LANDSCAPE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITY LINES (WATER, SEWER, ELECTRICAL, TELEPHONE, GAS, CABLE, TELEVISION, ETC.) PRIOR TO THE START OF ANY WORK.

PRODUCTS

A. ALL MANUFACTURED PRODUCTS SHALL BE NEW.
B. CONTAINER AND BALLED-AND-BURLAPPED PLANTS:
   1. FURNISH NURSERY-GROWN PLANTS COMPLYING WITH ANSI Z60.1-2014. PROVIDE WELL-SHAPED, FULLY BRANCHED, HEALTHY, VIGOROUS STOCK FREE OF DISEASE, INSECTS, EGGS, LARVAE, AND DEFECTS SUCH AS KNOTS, SUN SCALD, INJURIES, ABRASIONS, AND DISFIGUREMENT. ALL PLANTS WITHIN A SPECIES SHALL HAVE SIMILAR SIZE, AND SHALL BE OF A FORM TYPICAL FOR THE SPECIES. ALL TREES SHALL BE OBTAINED FROM SOURCES WITHIN 200 MILES OF THE PROJECT SITE, AND WITH SIMILAR CLIMACTIC CONDITIONS.
   2. ROOT SYSTEMS SHALL BE HEALTHY, DENSELY BRANCHED ROOT SYSTEMS, NON-POT-BOUND, FREE FROM ENCIRCLING AND/OR GIRDLING ROOTS, AND FREE FROM ANY OTHER ROOT DEFECTS (SUCH AS J-SHAPED ROOTS).
   3. TREES MAY BE PLANTED FROM CONTAINERS OR BALLED-AND-BURLAPPED (B&B), UNLESS SPECIFIED ON THE PLANTING LEGEND. BARE-ROOT TREES ARE NOT ACCEPTABLE.
   4. ANY PLANT DEEMED UNACCEPTABLE BY THE LANDSCAPE ARCHITECT OR OWNER SHALL BE IMMEDIATELY REMOVED FROM THE SITE AND SHALL BE REPLACED WITH AN ACCEPTBLE PLANT OF LIKE TYPE AND SIZE AT THE CONTRACTOR'S OWN EXPENSE. ANY PLANTS APPEARING TO BE UNHEALTHY, EVEN IF DETERMINED TO STILL BE ALIVE, SHALL NOT BE ACCEPTED. THE LANDSCAPE ARCHITECT AND OWNER SHALL BE THE SOLE JUDGES AS TO THE ACCEPTABILITY OF PLANT MATERIAL.
   5. ALL TREES SHALL BE STANDARD IN FORM, UNLESS OTHERWISE SPECIFIED. TREES WITH CENTRAL LEADERS WILL NOT BE ACCEPTED IF LEADER IS DAMAGED OR REMOVED. PRUNE ALL DAMAGED TWIGS AFTER PLANTING.
   6. CALIPER MEASUREMENTS FOR STANDARD (SINGLE TRUNK) TREES SHALL BE AS FOLLOWS: SIX INCHES ABOVE THE ROOT FLARE FOR TREES UP TO AND INCLUDING FOUR INCHES IN CALIPER, AND TWELVE INCHES ABOVE THE ROOT FLARE FOR TREES EXCEEDING FOUR INCHES IN CALIPER.
   7. MULTI-TRUNK TREES SHALL BE MEASURED BY THEIR OVERALL HEIGHT, MEASURED FROM THE TOP OF THE ROOT BALL. WHERE CALIPER MEASUREMENTS ARE USED, THE CALIPER SHALL BE CALCULATED AS ONE-HALF OF THE SUM OF THE CALIPER OF THE THREE LARGEST TRUNKS.
   8. ANY TREE OR SHRUB SHOWN TO HAVE EXCESS SOIL PLACED ON TOP OF THE ROOT BALL, SO THAT THE ROOT FLARE HAS BEEN COMPLETELY COVERED, SHALL BE REJECTED.
C. SOD: PROVIDE WELL-ROOTED SOD OF THE VARIETY NOTED ON THE PLANS. SOD SHALL BE CUT FROM HEALTHY, MATURE TURF WITH SOIL THICKNESS OF 3/4" TO 1". EACH PALLET OF SOD SHALL BE ACCOMPANIED BY A CERTIFICATE FROM SUPPLIER STATING THE COMPOSITION OF THE SOD.
D. TOPSOIL: SANDY TO CLAY LOAM TOPSOIL, FREE OF STONES LARGER THAN ½ INCH, FOREIGN MATTER, PLANTS, ROOTS, AND SEEDS.
E. COMPOST: WELL-COMPOSTED, STABLE, AND WEED-FREE ORGANIC MATTER, pH RANGE OF 5.5 TO 8; MOISTURE CONTENT 35 TO 55 PERCENT BY WEIGHT; 100 PERCENT PASSING THROUGH 3/4-INCH SIEVE; SOLUBLE SALT CONTENT OF 5 TO 10 DECISIEMENS/M; NOT EXCEEDING 0.5 PERCENT INERT CONTAMINANTS AND FREE OF SUBSTANCES TOXIC TO PLANTINGS. NO MANURE OR ANIMAL-BASED PRODUCTS SHALL BE USED.
F. FERTILIZER: GRANULAR FERTILIZER CONSISTING OF NITROGEN, PHOSPHORUS, POTASSIUM, AND OTHER NUTRIENTS IN PROPORTIONS, AMOUNTS, AND RELEASE RATES RECOMMENDED IN A SOIL REPORT FROM A QUALIFIED SOIL-TESTING AGENCY (SEE BELOW).
G. MULCH: SIZE AND TYPE AS INDICATED ON PLANS, FREE FROM DELETERIOUS MATERIALS AND SUITABLE AS A TOP DRESSING OF TREES AND SHRUBS.
H. TREE STAKING AND GUYING
   1. STAKES: 6' LONG GREEN METAL T-POSTS.
   2. GUY AND TIE WIRE: ASTM A 641, CLASS 1, GALVANIZED-STEEL WIRE, 2-STRAND, TWISTED, 0.106 INCH DIAMETER.
   3. STRAP CHAFING GUARD: REINFORCED NYLON OR CANVAS AT LEAST 1-1/2 INCH WIDE, WITH GROMMETS TO PROTECT TREE TRUNKS FROM DAMAGE.
I. STEEL EDGING: PROFESSIONAL STEEL EDGING, 14 GAUGE THICK X 4 INCHES WIDE, FACTORY PAINTED DARK GREEN. ACCEPTABLE MANUFACTURERS INCLUDE COL-MET OR APPROVED EQUAL.
J. PRE-EMERGENT HERBICIDES: ANY GRANULAR, NON-STAINING PRE-EMERGENT HERBICIDE THAT IS LABELED FOR THE SPECIFIC ORNAMENTALS OR TURF ON WHICH IT WILL BE UTILIZED. PRE-EMERGENT HERBICIDES SHALL BE APPLIED PER THE MANUFACTURER'S LABELED RATES.

METHODS

A. SOIL PREPARATION
   1. BEFORE STARTING WORK, THE LANDSCAPE CONTRACTOR SHALL VERIFY THAT THE GRADE OF ALL LANDSCAPE AREAS ARE WITHIN +/-0.1" OF FINISH GRADE. THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY SHOULD ANY DISCREPANCIES EXIST.
   2. SOIL TESTING:
      a. AFTER FINISH GRADES HAVE BEEN ESTABLISHED, CONTRACTOR SHALL HAVE SOIL SAMPLES FROM THE PROJECT'S LANDSCAPE AREAS TESTED BY AN ESTABLISHED SOIL TESTING LABORATORY. EACH SAMPLE SUBMITTED TO THE LAB SHALL CONTAIN NO LESS THAN ONE QUART OF SOIL, TAKEN FROM BETWEEN THE SOIL SURFACE AND 6" DEPTH. IF NO SAMPLE LOCATIONS ARE INDICATED ON THE PLANS, THE CONTRACTOR SHALL TAKE A MINIMUM OF THREE SAMPLES FROM VARIOUS REPRESENTATIVE LOCATIONS FOR TESTING.
      b. THE CONTRACTOR SHALL HAVE THE SOIL TESTING LABORATORY PROVIDE RESULTS FOR THE FOLLOWING: SOIL TEXTURAL CLASS, GENERAL SOIL FERTILITY, pH, ORGANIC MATTER CONTENT, SALT (CEC), LIME, SODIUM ADSORPTION RATIO (SAR) AND BORON CONTENT.
      c. THE CONTRACTOR SHALL ALSO SUBMIT THE PROJECT'S PLANT LIST TO THE LABORATORY ALONG WITH THE SOIL SAMPLES.
      d. THE SOIL REPORT PRODUCED BY THE LABORATORY SHALL CONTAIN RECOMMENDATIONS FOR THE FOLLOWING (AS APPROPRIATE): SEPARATE SOIL PREPARATION AND BACKFILL MIX RECOMMENDATIONS FOR GENERAL ORNAMENTAL PLANTS, XERIC PLANTS, TURF, AND NATIVE SEED, AS WELL AS PRE-PLANT FERTILIZER APPLICATIONS AND RECOMMENDATIONS FOR ANY OTHER SOIL RELATED ISSUES. THE REPORT SHALL ALSO PROVIDE A FERTILIZER PROGRAM FOR THE ESTABLISHMENT PERIOD AND FOR LONG-TERM MAINTENANCE.
   3. THE CONTRACTOR SHALL INSTALL SOIL AMENDMENTS AND FERTILIZERS PER THE SOILS REPORT RECOMMENDATIONS. ANY CHANGE IN COST DUE TO THE SOIL REPORT RECOMMENDATIONS, EITHER INCREASE OR DECREASE, SHALL BE SUBMITTED TO THE OWNER WITH THE REPORT.
   4. FOR BIDDING PURPOSES ONLY, THE SOIL PREPARATION SHALL CONSIST OF THE FOLLOWING:
      a. TURF: INCORPORATE THE FOLLOWING AMENDMENTS INTO THE TOP 8" OF SOIL BY MEANS OF ROTOTILLING AFTER CROSS-RIPPING:
         i. NITROGEN STABILIZED ORGANIC AMENDMENT - 4 CU. YDS. PER 1,000 S.F.
         ii. PREPLANT TURF FERTILIZER (10-20-10 OR SIMILAR, SLOW RELEASE, ORGANIC) - 15 LBS PER 1,000 S.F.
         iii. "CLAY BUSTER" OR EQUAL - USE MANUFACTURER'S RECOMMENDED RATE
      b. TREES, SHRUBS, AND PERENNIALS: INCORPORATE THE FOLLOWING AMENDMENTS INTO THE TOP 8" OF SOIL BY MEANS OF ROTOTILLING AFTER CROSS-RIPPING:
         i. NITROGEN STABILIZED ORGANIC AMENDMENT - 4 CU. YDS. PER 1,000 S.F.
         ii. 12-12-12 FERTILIZER (OR SIMILAR, ORGANIC, SLOW RELEASE) - 10 LBS. PER CU. YD.
         iii. "CLAY BUSTER" OR EQUAL - USE MANUFACTURER'S RECOMMENDED RATE
         iv. IRON SULPHATE - 2 LBS. PER CU. YD.
   5. IN THE CONTEXT OF THESE PLANS, NOTES, AND SPECIFICATIONS, "FINISH GRADE" REFERS TO THE FINAL ELEVATION OF THE SOIL SURFACE (NOT TOP OF MULCH) AS INDICATED ON THE GRADING PLANS.
      a. BEFORE STARTING WORK, THE LANDSCAPE CONTRACTOR SHALL VERIFY THAT THE ROUGH GRADES OF ALL LANDSCAPE AREAS ARE WITHIN +/-0.1' OF FINISH GRADE. SEE SPECIFICATIONS FOR MORE DETAILED INSTRUCTION ON TURF AREA AND PLANTING BED PREPARATION.
      b. CONSTRUCT AND MAINTAIN FINISH GRADES AS SHOWN ON GRADING PLANS, AND CONSTRUCT AND MAINTAIN SLOPES AS RECOMMENDED BY THE GEOTECHNICAL REPORT. ALL LANDSCAPE AREAS SHALL HAVE POSITIVE DRAINAGE AWAY FROM STRUCTURES AT THE MINIMUM SLOPE SPECIFIED IN THE REPORT AND ON THE GRADING PLANS, AND AREAS OF POTENTIAL PONDING SHALL BE REGRADED TO BLEND IN WITH THE SURROUNDING GRADES AND ELIMINATE PONDING POTENTIAL.
      c. THE LANDSCAPE CONTRACTOR SHALL DETERMINE WHETHER OR NOT THE EXPORT OF ANY SOIL WILL BE NEEDED, TAKING INTO ACCOUNT THE ROUGH GRADE PROVIDED, THE AMOUNT OF SOIL AMENDMENTS TO BE ADDED (**BASED ON A SOIL TEST**, PER SPECIFICATIONS), AND THE FINISH GRADES TO BE ESTABLISHED.
      d. ENSURE THAT THE FINISH GRADE IN SHRUB AREAS IMMEDIATELY ADJACENT TO WALKS AND OTHER WALKING SURFACES, AFTER INSTALLING SOIL AMENDMENTS, IS 3" BELOW THE ADJACENT FINISH SURFACE, IN ORDER TO ALLOW FOR PROPER MULCH DEPTH. TAPER THE SOIL SURFACE TO MEET FINISH GRADE, AS SPECIFIED ON THE GRADING PLANS, AT APPROXIMATELY 18" AWAY FROM THE WALKS.
      e. ENSURE THAT THE FINISH GRADE IN TURF AREAS IMMEDIATELY ADJACENT TO WALKS AND OTHER WALKING SURFACES, AFTER INSTALLING SOIL AMENDMENTS, IS 1" BELOW THE FINISH SURFACE OF THE WALKS. TAPER THE SOIL SURFACE TO MEET FINISH GRADE, AS SPECIFIED ON THE GRADING PLANS, AT APPROXIMATELY 18" AWAY FROM THE WALKS.
      f. SHOULD ANY CONFLICTS AND/OR DISCREPANCIES ARISE BETWEEN THE GRADING PLANS, GEOTECHNICAL REPORT, THESE NOTES AND PLANS, AND ACTUAL CONDITIONS, THE CONTRACTOR SHALL IMMEDIATELY BRING SUCH ITEMS TO THE ATTENTION OF THE LANDSCAPE ARCHITECT, GENERAL CONTRACTOR, AND OWNER.
   6. ONCE SOIL PREPARATION IS COMPLETE, THE LANDSCAPE CONTRACTOR SHALL ENSURE THAT THERE ARE NO DEBRIS, TRASH, OR STONES LARGER THAN 1" REMAINING IN THE TOP 6" OF SOIL.

B. SUBMITTALS
   1. THE CONTRACTOR SHALL PROVIDE SUBMITTALS AND SAMPLES, IF REQUIRED, TO THE LANDSCAPE ARCHITECT, AND RECEIVE APPROVAL IN WRITING FOR SUCH SUBMITTALS BEFORE WORK COMMENCES.
   2. SUBMITTALS SHALL INCLUDE PHOTOS OF PLANTS WITH A RULER OR MEASURING STICK FOR SCALE, PHOTOS OR SAMPLES OF ANY REQUIRED MULCHES, AND SOIL TEST RESULTS AND PREPARATION RECOMMENDATIONS FROM THE TESTING LAB (INCLUDING COMPOST AND FERTILIZER RATES AND TYPES, AND OTHER AMENDMENTS FOR TREE/SHRUB, TURF, AND SEED AREAS AS MAY BE APPROPRIATE).
   3. SUBMITTALS SHALL ALSO INCLUDE MANUFACTURER CUT SHEETS FOR PLANTING ACCESSORIES SUCH AS TREE STAKES AND TIES, EDGING, AND LANDSCAPE FABRICS (IF ANY).
   4. WHERE MULTIPLE ITEMS ARE SHOWN ON A PAGE, THE CONTRACTOR SHALL CLEARLY INDICATE THE ITEM BEING CONSIDERED.
C. GENERAL PLANTING
   1. REMOVE ALL NURSERY TAGS AND STAKES FROM PLANTS.
   2. EXCEPT IN AREAS TO BE PLANTED WITH ORNAMENTAL GRASSES, APPLY PRE-EMERGENT HERBICIDES AT THE MANUFACTURER'S RECOMMENDED RATE.
   3. TRENCHING NEAR EXISTING TREES:
      a. CONTRACTOR SHALL NOT DISTURB ROOTS 1-1/2" AND LARGER IN DIAMETER WITHIN THE CRITICAL ROOT ZONE (CRZ) OF EXISTING TREES, AND SHALL EXERCISE ALL POSSIBLE CARE AND PRECAUTIONS TO AVOID INJURY TO TREE ROOTS, TRUNKS, AND BRANCHES. THE CRZ IS DEFINED AS A CIRCULAR AREA EXTENDING OUTWARD FROM THE TREE TRUNK, WITH A RADIUS EQUAL TO 1' FOR EVERY 1" OF TRUNK DIAMETER-AT-BREAST-HEIGHT (4.5' ABOVE THE AVERAGE GRADE AT THE TRUNK).
      b. ALL EXCAVATION WITHIN THE CRZ SHALL BE PERFORMED USING HAND TOOLS. NO MACHINE EXCAVATION OR TRENCHING OF ANY KIND SHALL BE ALLOWED WITHIN THE CRZ.
      c. ALTER ALIGNMENT OF PIPE TO AVOID TREE ROOTS 1-1/2" AND LARGER IN DIAMETER. WHERE TREE ROOTS 1-1/2" AND LARGER IN DIAMETER ARE ENCOUNTERED IN THE FIELD, TUNNEL UNDER SUCH ROOTS. WRAP EXPOSED ROOTS WITH SEVERAL LAYERS OF BURLAP AND KEEP MOIST. CLOSE ALL TRENCHES WITHIN THE CANOPY DRIP LINES WITHIN 24 HOURS.
      d. ALL SEVERED ROOTS SHALL BE HAND PRUNED WITH SHARP TOOLS AND ALLOWED TO AIR-DRY. DO NOT USE ANY SORT OF SEALERS OR WOUND PAINTS.
D. TREE PLANTING
   1. TREE PLANTING HOLES SHALL BE EXCAVATED TO MINIMUM WIDTH OF TWO TIMES THE WIDTH OF THE ROOTBALL, AND TO A DEPTH EQUAL TO THE DEPTH OF THE ROOTBALL LESS TWO TO FOUR INCHES.
   2. SCARIFY THE SIDES AND BOTTOM OF THE PLANTING HOLE PRIOR TO THE PLACEMENT OF THE TREE. REMOVE ANY GLAZING THAT MAY HAVE BEEN CAUSED DURING THE EXCAVATION OF THE HOLE.
   3. FOR CONTAINER AND BOX TREES, TO REMOVE ANY POTENTIALLY GIRDLING ROOTS AND OTHER ROOT DEFECTS, THE CONTRACTOR SHALL SHAVE A 1" LAYER OFF OF THE SIDES AND BOTTOM OF THE ROOTBALL OF ALL TREES JUST BEFORE PLACING INTO THE PLANTING PIT. DO NOT "TEASE" ROOTS OUT FROM THE ROOTBALL.
   4. INSTALL THE TREE ON UNDISTURBED SUBGRADE SO THAT THE TOP OF THE ROOTBALL IS TWO TO FOUR INCHES ABOVE THE SURROUNDING GRADE.
   5. BACKFILL THE TREE HOLE UTILIZING THE EXISTING TOPSOIL FROM ON-SITE. ROCKS LARGER THAN 1" DIA. AND ALL OTHER DEBRIS SHALL BE REMOVED FROM THE SOIL PRIOR TO THE BACKFILL. SHOULD ADDITIONAL SOIL BE REQUIRED TO ACCOMPLISH THIS TASK, USE STORED TOPSOIL FROM ON-SITE OR IMPORT ADDITIONAL TOPSOIL FROM OFF-SITE AT NO ADDITIONAL COST TO THE OWNER. IMPORTED TOPSOIL SHALL BE OF SIMILAR TEXTURAL CLASS AND COMPOSITION IN THE ON-SITE SOIL.
   6. TREES SHALL NOT BE STAKED UNLESS LOCAL CONDITIONS (SUCH AS HEAVY WINDS OR SLOPES) REQUIRE STAKES TO KEEP TREES UPRIGHT. SHOULD STAKING BE REQUIRED, THE TOTAL NUMBER OF TREE STAKES (BEYOND THE MINIMUMS LISTED BELOW) WILL BE LEFT TO THE LANDSCAPE CONTRACTOR'S DISCRETION. SHOULD ANY TREES FALL OR LEAN, THE LANDSCAPE CONTRACTOR SHALL STRAIGHTEN THE TREE, OR REPLACE IT SHOULD IT BECOME DAMAGED. TREE STAKING SHALL ADHERE TO THE FOLLOWING GUIDELINES:
      a. 1"-2" TREES — TWO STAKES PER TREE
      b. 2-1/2"-4" TREES — THREE STAKES PER TREE
      c. TREES OVER 4" CALIPER — GUY AS NEEDED
      d. MULTI-TRUNK TREES — THREE STAKES PER TREE MINIMUM, QUANTITY AND POSITIONS AS NEEDED TO STABILIZE THE TREE
      e. MULTI-TRUNK TREES — THREE STAKES PER TREE MINIMUM, QUANTITY AND POSITIONS AS NEEDED TO STABILIZE THE TREE
   7. UPON COMPLETION OF PLANTING, CONSTRUCT AN EARTH WATERING BASIN AROUND THE TREE. COVER THE INTERIOR OF THE TREE RING WITH THE WEED BARRIER CLOTH AND TOPDRESS WITH MULCH (TYPE AND DEPTH PER PLANS).
E. SHRUB, PERENNIAL, AND GROUNDCOVER PLANTING
   1. DIG THE PLANTING HOLES TWICE AS WIDE AND 2" LESS DEEP THAN EACH PLANT'S ROOTBALL. INSTALL THE PLANT IN THE HOLE. BACKFILL AROUND THE PLANT WITH SOIL AMENDED PER SOIL TEST RECOMMENDATIONS.
   2. INSTALL THE WEED BARRIER CLOTH, OVERLAPPING IT AT THE ENDS. UTILIZE STEEL STAPLES TO KEEP THE WEED BARRIER CLOTH IN PLACE.
   3. WHEN PLANTING IS COMPLETE, INSTALL MULCH (TYPE AND DEPTH PER PLANS) OVER ALL PLANTING BEDS, COVERING THE ENTIRE PLANTING AREA.
F. SODDING
   1. SOD VARIETY TO BE AS SPECIFIED ON THE LANDSCAPE PLAN.
   2. LAY SOD WITHIN 24 HOURS FROM THE TIME OF STRIPPING. DO NOT LAY IF THE GROUND IS FROZEN.
   3. LAY THE SOD TO FORM A SOLID MASS WITH TIGHTLY FITTED JOINTS. BUTT ENDS AND SIDES OF SOD STRIPS - DO NOT OVERLAP. STAGGER STRIPS TO OFFSET JOINTS IN ADJACENT COURSES.
   4. ROLL THE SOD TO ENSURE GOOD CONTACT OF THE SOD'S ROOT SYSTEM WITH THE SOIL UNDERNEATH.
   5. WATER THE SOD THOROUGHLY WITH A FINE SPRAY IMMEDIATELY AFTER PLANTING TO OBTAIN AT LEAST SIX INCHES OF PENETRATION INTO THE SOIL BELOW THE SOD.
G. MULCH
   1. INSTALL MULCH TOPDRESSING, TYPE AND DEPTH PER MULCH NOTE, IN ALL PLANTING AREAS AND TREE RINGS.
   2. DO NOT INSTALL MULCH WITHIN 6" OF TREE ROOT FLARE AND WITHIN 24" OF HABITABLE STRUCTURES, EXCEPT AS MAY BE NOTED ON THESE PLANS. MULCH COVER WITHIN 6" OF CONCRETE WALKS AND CURBS SHALL NOT PROTRUDE ABOVE THE FINISH SURFACE OF THE WALKS AND CURBS. MULCH COVER WITHIN 12" OF WALLS SHALL BE AT LEAST 3" LOWER THAN THE TOP OF WALL.
H. CLEAN UP
   1. DURING LANDSCAPE PREPARATION AND PLANTING, KEEP ALL PAVEMENT CLEAN AND ALL WORK AREAS IN A NEAT, ORDERLY CONDITION.
   2. DISPOSED LEGALLY OF ALL EXCAVATED MATERIALS OFF THE PROJECT SITE.
I. INSPECTION AND ACCEPTANCE
   1. UPON COMPLETION OF THE WORK, THE LANDSCAPE CONTRACTOR SHALL PROVIDE THE SITE CLEAN, FREE OF DEBRIS AND TRASH, AND SUITABLE FOR USE AS INTENDED. THE LANDSCAPE CONTRACTOR SHALL THEN REQUEST AN INSPECTION BY THE OWNER TO DETERMINE FINAL ACCEPTABILITY.
   2. WHEN THE INSPECTED PLANTING WORK DOES NOT COMPLY WITH THE CONTRACT DOCUMENTS, THE LANDSCAPE CONTRACTOR SHALL REPLACE AND/OR REPAIR THE REJECTED WORK TO THE OWNER'S SATISFACTION WITHIN 24 HOURS.
   3. THE LANDSCAPE MAINTENANCE PERIOD WILL NOT COMMENCE UNTIL THE LANDSCAPE WORK HAS BEEN RE-INSPECTED BY THE OWNER AND FOUND TO BE ACCEPTABLE. AT THAT TIME, A WRITTEN NOTICE OF FINAL ACCEPTANCE WILL BE ISSUED BY THE OWNER, AND THE MAINTENANCE AND GUARANTEE PERIODS WILL COMMENCE.
J. LANDSCAPE MAINTENANCE
   1. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL WORK SHOWN ON THESE PLANS FOR 90 DAYS BEYOND FINAL ACCEPTANCE OF ALL LANDSCAPE WORK BY THE OWNER. LANDSCAPE MAINTENANCE SHALL INCLUDE WEEKLY SITE VISITS FOR THE FOLLOWING ACTIONS (AS APPROPRIATE): PROPER PRUNING, RESTAKING OF TREES, RESETTING OF PLANTS THAT HAVE SETTLED, MOWING AND AERATION OF LAWNS, WEEDING, TREATING FOR INSECTS AND DISEASES,REPLACEMENT OF MULCH, REMOVAL OF LITTER, REPAIRS TO THE IRRIGATION SYSTEM DUE TO FAULTY PARTS AND/OR WORKMANSHIP, AND THE APPROPRIATE WATERING OF ALL PLANTINGS. THE LANDSCAPE CONTRACTOR SHALL MAINTAIN THE IRRIGATION SYSTEM IN PROPER WORKING ORDER, WITH SCHEDULING ADJUSTMENTS BY SEASON TO MAXIMIZE WATER CONSERVATION.
   2. SHOULD SEEDED AND/OR SODDED AREAS NOT BE COVERED BY AN AUTOMATIC IRRIGATION SYSTEM, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR WATERING THESE AREAS AND OBTAINING A FULL, HEALTHY STAND OF PLANTS AT NO ADDITIONAL COST TO THE OWNER.
   3. TO ACHIEVE FINAL ACCEPTANCE AT THE END OF THE MAINTENANCE PERIOD, ALL OF THE FOLLOWING CONDITIONS MUST OCCUR:
      a. THE LANDSCAPE SHALL SHOW ACTIVE, HEALTHY GROWTH (WITH EXCEPTIONS MADE FOR SEASONAL DORMANCY). ALL PLANTS NOT MEETING THIS CONDITION SHALL BE REJECTED AND REPLACED BY HEALTHY PLANT MATERIAL PRIOR TO FINAL ACCEPTANCE.
      b. ALL HARDSCAPE SHALL BE CLEANED PRIOR TO FINAL ACCEPTANCE.
      c. SODDED AREAS MUST BE ACTIVELY GROWING AND MUST REACH A MINIMUM HEIGHT OF 1 1/2 INCHES BEFORE FIRST MOWING. BARE AREAS LARGER THAN TWELVE SQUARE INCHES MUST BE RESODDED (AS APPROPRIATE) PRIOR TO FINAL ACCEPTANCE. ALL SODDED TURF SHALL BE NEATLY MOWED.
K. WARRANTY PERIOD, PLANT GUARANTEE AND REPLACEMENTS
   1. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL TREES, SHRUBS, PERENNIALS, SOD, AND IRRIGATION SYSTEMS FOR A PERIOD OF ONE YEAR FROM THE DATE OF THE OWNER'S FINAL ACCEPTANCE (90 DAYS FOR ANNUAL PLANTS). THE CONTRACTOR SHALL REPLACE, AT HIS OWN EXPENSE AND TO THE SATISFACTION OF THE OWNER, ANY PLANTS WHICH DIE IN THAT TIME, OR REPAIR ANY PORTIONS OF THE IRRIGATION SYSTEM WHICH OPERATE IMPROPERLY.
   2. AFTER THE INITIAL MAINTENANCE PERIOD AND DURING THE GUARANTEE PERIOD, THE LANDSCAPE CONTRACTOR SHALL ONLY BE RESPONSIBLE FOR REPLACEMENT OF PLANTS WHEN PLANT DEATH CANNOT BE ATTRIBUTED DIRECTLY TO OVERWATERING OR OTHER DAMAGE BY HUMAN ACTIONS.
L. PROVIDE A MINIMUM OF (2) COPIES OF RECORD DRAWINGS TO THE OWNER UPON COMPLETION OF WORK. A RECORD DRAWING IS A RECORD OF ALL CHANGES THAT OCCURRED IN THE FIELD AND THAT ARE DOCUMENTED THROUGH CHANGE ORDERS, ADDENDA, OR CONTRACTOR/CONSULTANT DRAWING MARKUPS.

DUWEST ROCKWALL, TX

LEGAL DESCRIPTION AND OR ADDRESS:

STONE CREEK BALANCE LTD
ABSTRACT. NO 131
8.684 AC (378,275 SF)

OWNER:
DuWEST REALTY, LLC
4403 N.CENTRAL EXWAY SUITE #200
DALLAS, TX 75025
CONTACT: BOWEN HENDRIX
PH: 214.918.1804

APPLICANT:
CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
PH: 817.281.0572

CASE NUMBER
Z2022-003

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING AND ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____.

WITNESS OUR HANDS THIS ____ DAY OF _____.

_____
PLANNING AND ZONING COMMISSION, CHAIRMAN

_____
DIRECTOR OF PLANNING AND ZONING

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
1903 CENTRAL DR, SUITE #406
BEDFORD, TX 76021
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM

REGISTERED LANDSCAPE ARCHITECT
DARCY R. BRANDON
3423
STATE OF TEXAS

10/13/2022

EVERGREEN DESIGN GROUP
(800) 680-6630
15455 Dallas Pkwy., Ste 600
Addison, TX 75001
www.EvergreenDesignGroup.com

DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

LANDSCAPE PLANTING SPECIFICATIONS

DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	10/13/2022

SHEET
LP-3

File No. 2022-002

CASE # SP2022-042

PLOTTED BY: DARCY BRANDON
PLOT DATE: 10/13/2022 3:12 PM
LOCATION: C:\USERS\DARCY\DOCUMENTS\DBLA_PROJECTS\2022\LDG\CHIPOLTE DUWEST - ROCKWALL, TX\XREFS\2022-10-10 DUWEST ROCKWALL PHASE 2.DWG
LAST SAVED: 10/13/2022 3:10 PM

NOTE: TREE PROTECTION FOR ANY PRESERVED OR RELOCATED TREES MUST BE PROVIDED PER DETAILS AND SPECIFICATIONS ON SHEET TD-2. THESE MUST BE UP PRIOR TO THE COMMENCEMENT OF ANY WORK AND MAINTAINED THROUGHOUT CONSTRUCTION.

NOTE: ALL TREE TRIMMING MUST BE APPROVED BY THE OWNER AND LOCAL JURISDICTION PRIOR TO COMMENCEMENT OF WORK. ALL TREE TRIMMING MUST BE DONE BY AN ISA CERTIFIED ARBORIST IN ACCORDANCE WITH LOCAL TREE PRESERVATION ORDINANCE.

N 14°18'55" W 490.04'

96.09'

8.62 ACRES

CALLED 266.364 AC
STONE CREEK BALANC
VOL. 5010, PG. 2
D.R.R.C.T.

LIMIT OF WORK - PHASE 2
LIMIT OF WORK - PHASE 1
LIMIT OF WORK - PHASE 1
LIMIT OF WORK - PHASE 2
LIMIT OF WORK

CULVERT
DM=469.8'

CONCRETE CULVERT

STATE HIGHWAY 205
100' RIGHT-OF-WAY

N 54°44'31" W 165.14'

DIGITAL GROUP AHEAD

SITE DATA TABLE

	PHASE 2 (CHIPOTLE)	PHASE 1 (EXISTING)	TOTAL
SITE AREA	8.684 AC / 378,275 SF	8.684 AC / 378,275 SF	8.684 AC / 378,275 SF
ZONING	PD-70 (Planned Development)	PD-70 (Planned Development) GR (General Retail Dist.)	PD-70
PROPOSED USE	DRIVE-THRU RESTAURANT	RETAIL/DRIVE-THRU RESTAURANT	RETAIL/DRIVE-THRU RESTAURANT
BUILDING SIZE	2,325 SF	BLDG. B - 10,000 SF BLDG. C - 10,000 SF	20,325 SF
PATIO AREA	332 SF	2,777 SF	3,109 SF
LOT COVERAGE	0.06%	5.2%	5.26%
FLOOR AREA RATIO	0.00:1	0.05:1	0.06:1
BUILDING HEIGHT	1-STORY	1-STORY	1-STORY
IMPERVIOUS AREA	29,064 SF (0.8%)	116,406 SF (30.8%)	145,138 SF (38.3%)
OPEN SPACE	8.62 AC (92%)	6.04 AC (69.2%)	5.4 AC (61.7%)

PARKING DATA TABLE

PARKING REQUIRED	
DRIVE-THRU RESTAURANT (2,325 SF) 1 SPACE / 100 SF	24 SPACES
STANDARD PARKING	33 SPACES
ADA PARKING	2 SPACES
PARKING PROVIDED	
TOTAL PARKING	33 SPACES
ADA PARKING	2 SPACES

TREE MITIGATION SUMMARY

TOTAL MITIGATION REQUIRED:	387"
MITIGATION PROVIDED BY PLANTING 4" CALIPER TREES (78) TO BE PLANTED ONSITE:	312"
MITIGATION PROVIDED BY PURCHASING PRESERVATION CREDITS (20% OF TOTAL): (77.4" x $200 = $15,480 PAYMENT INTO THE CITY'S TREE FUND)	77.4"
TOTAL MITIGATION PROVIDED:	389.4"

LEGEND

- TREE TAG NUMBER
- EXISTING TREES TO BE PROTECTED IN PLACE
- TREE PROTECTION FENCE
- TREE TAG NUMBER
- EXISTING TREES TO BE REMOVED

SEE SHEET TD-2 FOR EXISTING TREE SURVEY TABLES & TREE MITIGATION CALCULATION TABLE
SEE SHEET LP-1 FOR PROPOSED REPLACEMENT TREES FOR MITIGATION.

Scale 1" = 20'

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WITNESS OUR HANDS THIS ____ DAY OF _____.

PLANNING AND ZONING COMMISSION, CHAIRMAN

DIRECTOR OF PLANNING AND ZONING

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DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

TREESCAPE PLAN

DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	10/13/2022

SHEET

TD-1

File No. 2022-002

CASE # SP2022-042

PLOTTED BY: DARCY BRANDON
PLOT DATE: 10/13/2022 3:13 PM
LOCATION: C:\USERS\DARCY\DOCUMENTS\DBLA_PROJECTS\2022\EDG\CHIPOLTE DUWEST - ROCKWALL, TX\XREFS\2022-10-10 DUWEST ROCKWALL PHASE 2.DWG
LAST SAVED: 10/13/2022 3:10 PM

EXISTING TREE SURVEY

TREE TAG	SPECIES	CALIPER		FEATURE TREE	FEATRUE TREE REMOVED (2:1)	MITIGATION	PRIMARY PROTECTED	PRIMARY PROTECTED REMOVED (1:1)	MITIGATION	SECONDARY PROTECTED	SECONDARY PROTECTED REMOVED (0.5:1)	MITIGATION	NON-PROTECTED	COMMENTS
5001	CEDAR	22								22				PRESERVE
5002	CEDAR	10											10	PRESERVE
5003	CEDAR	10											10	PRESERVE
5004	CEDAR	10											10	PRESERVE
5005	HACKBERRY	24								24				PRESERVE
5006	CEDAR	14								14				PRESERVE
5007	HACKBERRY	12								12				PRESERVE
5008	HACKBERRY	16								16				PRESERVE
5009	HACKBERRY	14								14				PRESERVE
5057	CEDAR	24								24				PRESERVE
5058	HACKBERRY	12								12				PRESERVE
5059	HACKBERRY	24								24				PRESERVE
5060	ELM	30		30										PRESERVE
5061	ELM	23					23							PRESERVE
5062	HACKBERRY	8											8	PRESERVE
5063	ELM	7					7							PRESERVE
5064	ELM	25		25										PRESERVE
5065	HACKBERRY	13								13				PRESERVE
5066	PECAN	50		50										PRESERVE
5067	PECAN	20					20							PRESERVE
5068	WILLOW	13											13	PRESERVE
5069	ELM	13					13							PRESERVE
5071	ELM	15					15							PRESERVE
5072	PECAN	39		39										PRESERVE
5073	PECAN	23					23							PRESERVE
5095	HACKBERRY	9											9	REMOVE
5096	ELM	6						6	6					REMOVE
5097	ELM	12						12	12					REMOVE
5098	HACKBERRY	11									11	5.5		REMOVE
5100	CEDAR	9											9	REMOVE
5153	CEDAR	6											6	REMOVE
5155	BOIS D'ARC	36			36	72								REMOVE
5156	CEDAR	10											10	REMOVE
5157	HACKBERRY	20									20	10		REMOVE
5158	BOIS D'ARC	8											8	REMOVE
5159	HACKBERRY	13									13	6.5		REMOVE
5170	CEDAR	10											10	PRESERVE
5171	BOIS D'ARC	40		40										PRESERVE
5172	CEDAR	12								12				PRESERVE
5173	CEDAR	7											7	PRESERVE
5174	BOIS D'ARC	31		31										PRESERVE
5175	CEDAR	8											8	REMOVE
5176	HACKBERRY	8											8	REMOVE
5177	CEDAR	6											6	REMOVE
5178	BOIS D'ARC	21											21	REMOVE
5179	HACKBERRY	8											8	REMOVE
5180	HACKBERRY	8											8	REMOVE
5181	CEDAR	10											10	REMOVE
5182	BOIS D'ARC	14											14	REMOVE
5183	CEDAR	6											6	REMOVE
5184	BOIS D'ARC	26			26	52								REMOVE
5185	HACKBERRY	10											10	REMOVE
5186	BOIS D'ARC	10											10	REMOVE
5187	HACKBERRY	9											9	REMOVE
5188	BOIS D'ARC	10											10	REMOVE
5189	BOIS D'ARC	14											14	REMOVE
5190	HACKBERRY	16									16	8		REMOVE
5191	ELM	10						10	10					REMOVE
5192	ELM	8						8	8					REMOVE
5193	ELM	6						6	6					REMOVE
5194	BOIS D'ARC	20											20	REMOVE
5195	BOIS D'ARC	11											11	REMOVE
5196	HERCULES CLUB	13						13	13					REMOVE
5197	BOIS D'ARC	33			33	66								REMOVE
5198	HACKBERRY	8											8	REMOVE
5199	HACKBERRY	6											6	REMOVE
5200	ELM	28			28	56								REMOVE
5201	CEDAR	12									12	6		REMOVE
5202	CEDAR	10											10	REMOVE
5203	ELM	25			25	50								REMOVE
5204	WILLOW	30		30										PRESERVE
5205	WILLOW	13											13	PRESERVE
5207	WILLOW	12											12	PRESERVE
5208	WILLOW	16											16	PRESERVE
TOTAL TREES ON SITE		1156		245			101			187			348	
TREES REMOVED					148			55			72			
MITIGATION REQUIRED		387				296			55			36		
20% INTO TREE FUND		77.4												
BALANCE MITIGATION		309.6												
4" TREES REQ. TO MEET MITIGATION		77.4												

TREE MITIGATION CALCULATION TABLE

DESCRIPTION	CALIPER INCHES	FEATURE TREES	FEATURE TREES REMOVED 2:1	PRIMARY PROTECTED TREES	PRIMARY PROTECTED REMOVED 1:1	SECONDARY PROTECTED TREES	SECONDARY PROTECTED REMOVED 0.5:1	NON-PROTECTED TREES
TOTAL TREES ON SITE	1,156	245		101		187		348
TOTAL PROTECTED TREES	3,194							
TREES REMOVED	838		148		55		72	
TOTAL MITIGATION REQUIRED	387		296		55		36	
20% INTO TREE FUND ($200 / INCH)	77.4							
4" TREES PLANTED FOR MITIGATION (78)	312							
TOTAL MITIGATION PROVIDED	389.4							

TEXAS REGISTRATION #14199

CLAYMOORE ENGINEERING

PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM
1903 CENTRAL DR, SUITE #406
BEDFORD, TX 76021

REGISTERED LANDSCAPE ARCHITECT
DARCY R. BRANDON
3423
STATE OF TEXAS

10/13/2022

DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

DUWEST ROCKWALL, TX

LEGAL DESCRIPTION AND OR ADDRESS:

STONE CREEK BALANCE LTD
ABSTRACT. NO 131
8.684 AC (378,275 SF)

OWNER:

DuWEST REALTY, LLC
4403 N.CENTRAL EXWAY SUITE #200
DALLAS, TX 75025
CONTACT: BOWEN HENDRIX
PH: 214.918.1804

APPLICANT:

CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
PH: 817.281.0572

CASE NUMBER

Z2022-003

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING AND ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____.

WITNESS OUR HANDS THIS ____ DAY OF _____.

_____
PLANNING AND ZONING COMMISSION, CHAIRMAN

_____
DIRECTOR OF PLANNING AND ZONING

EVERGREEN DESIGN GROUP
(800) 680-6630
15455 Dallas Pkwy., Ste 600
Addison, TX 75001
www.EvergreenDesignGroup.com

TREESCAPE INVENTORY & MITIGATION

DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	10/13/2022

SHEET

TD-2

File No. 2022-002

CASE # SP2022-042

PLOTTED BY: DARCY BRANDON
PLOT DATE: 10/13/2022 3:13 PM
LOCATION: C:\USERS\DARCY\DOCUMENTS\DBLA_PROJECTS\2022\EDG\CHIPOLTE DUWEST - ROCKWALL, TX\XREF'S\2022-10-10 DUWEST ROCKWALL PHASE 2.DWG
LAST SAVED: 10/13/2022 3:10 PM

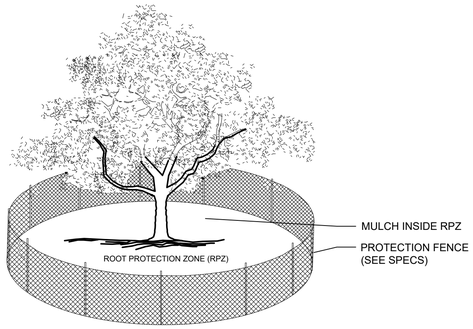
TREE PROTECTION SPECIFICATIONS

MATERIALS

1. FABRIC: 4 FOOT HIGH ORANGE PLASTIC FENCING AS SHOWN ON THE PLANS AND SHALL BE WOVEN WITH 2 INCH MESH OPENINGS SUCH THAT IN A VERTICAL DIMENSION OF 23 INCHES ALONG THE DIAGONALS OF THE OPENINGS THERE SHALL BE AT LEAST 7 MESHES.
2. POSTS: POSTS SHALL BE A MINIMUM OF 72 INCHES LONG AND STEEL 'T' SHAPED WITH A MINIMUM WEIGHT OF 1.3 POUNDS PER LINEAR FOOT.
3. TIE WIRE: WIRE FOR ATTACHING THE FABRIC TO THE T-POSTS SHALL BE NOT LESS THAN NO. 12 GAUGE GALVANIZED WIRE,
4. USED MATERIALS: PREVIOUSLY-USED MATERIALS, MEETING THE ABOVE REQUIREMENTS AND WHEN APPROVED BY THE OWNER, MAY BE USED.

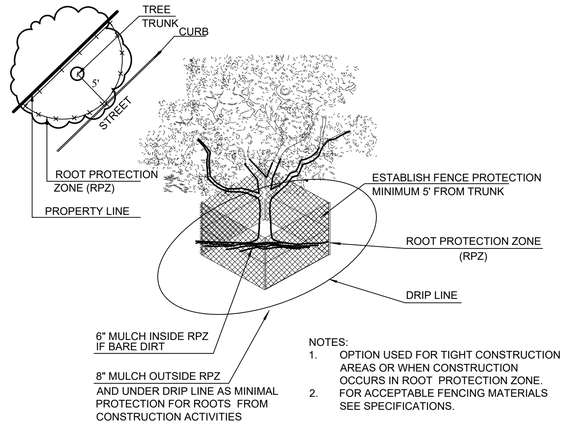
CONSTRUCTION METHODS

1. ALL TREES AND SHRUBS SHOWN TO REMAIN WITHIN THE PROXIMITY OF THE CONSTRUCTION SITE SHALL BE PROTECTED PRIOR TO BEGINNING ANY DEVELOPMENT ACTIVITY.
2. EMPLOY THE SERVICES OF AN ISA (INTERNATIONAL SOCIETY OF ARBORICULTURE) CERTIFIED ARBORIST AND OBTAIN ALL REQUIRED PERMITS TO PRUNE THE EXISTING TREES FOR CLEANING, RAISING AND THINNING, AS MAY BE REQUIRED.
3. PROTECTIVE FENCING SHALL BE ERECTED OUTSIDE THE CRITICAL ROOT ZONE (CRZ, EQUAL TO 1' FROM THE TRUNK FOR EVERY 1" OF DBH) AT LOCATIONS SHOWN IN THE PLANS OR AS DIRECTED BY THE LANDSCAPE CONSULTANT AND/OR CITY ARBORIST, AND IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS. FENCING SHALL BE MAINTAINED AND REPAIRED BY THE CONTRACTOR DURING SITE CONSTRUCTION. TREES IN CLOSE PROXIMITY SHALL BE FENCED TOGETHER, RATHER THAN INDIVIDUALLY.
4. PROTECTIVE FENCE LOCATIONS IN CLOSE PROXIMITY TO STREET INTERSECTIONS OR DRIVES SHALL ADHERE TO THE APPLICABLE JURISDICTION'S SIGHT DISTANCE CRITERIA.
5. THE PROTECTIVE FENCING SHALL BE ERECTED BEFORE SITE WORK COMMENCES AND SHALL REMAIN IN PLACE DURING THE ENTIRE CONSTRUCTION PHASE.
6. THE INSTALLATION POSTS SHALL BE PLACED EVERY 6 FEET ON CENTER AND EMBEDDED TO 18 INCHES DEEP. MESH FABRIC SHALL BE ATTACHED TO THE INSTALLATION POSTS BY THE USE OF SUFFICIENT WIRE TIES TO SECURELY FASTEN THE FABRIC TO THE T-POSTS TO HOLD THE FABRIC IN A STABLE AND UPRIGHT POSITION.
7. WITHIN THE CRZ:
   a. DO NOT CLEAR, FILL OR GRADE IN THE CRZ OF ANY TREE.
   b. DO NOT STORE, STOCKPILE OR DUMP ANY JOB MATERIAL, SOIL OR RUBBISH UNDER THE SPREAD OF THE TREE BRANCHES.
   c. DO NOT PARK OR STORE ANY EQUIPMENT OR SUPPLIES UNDER THE TREE CANOPY.
   d. DO NOT SET UP ANY CONSTRUCTION OPERATIONS UNDER THE TREE CANOPY (SUCH AS PIPE CUTTING AND THREADING, MORTAR MIXING, PAINTING OR LUMBER CUTTING).
   e. DO NOT NAIL OR ATTACH TEMPORARY SIGNS METERS, SWITCHES, WIRES, BRACING OR ANY OTHER ITEM TO THE TREES.
   f. DO NOT PERMIT RUNOFF FROM WASTE MATERIALS INCLUDING SOLVENTS, CONCRETE WASHOUTS, ASPHALT TACK COATS (MC-30 OIL), ETC. TO ENTER THE CRZ. BARRIERS ARE TO BE PROVIDED TO PREVENT SUCH RUNOFF SUBSTANCES FROM ENTERING THE CRZ WHENEVER POSSIBLE, INCLUDING IN AN AREA WHERE RAIN OR SURFACE WATER COULD CARRY SUCH MATERIALS TO THE ROOT SYSTEM OF THE TREE.
8. ROUTE UNDERGROUND UTILITIES TO AVOID THE CRZ. IF DIGGING IS UNAVOIDABLE, BORE UNDER THE ROOTS, OR HAND DIG TO AVOID SEVERING THEM.
9. WHERE EXCAVATION IN THE VICINITY OF TREES MUST OCCUR, SUCH AS FOR IRRIGATION INSTALLATION, PROCEED WITH CAUTION, AND USING HAND TOOLS ONLY.
10. THE CONTRACTOR SHALL NOT CUT ROOTS LARGER THAN ONE INCH IN DIAMETER WHEN EXCAVATION OCCURS NEAR EXISTING TREES. ALL ROOTS LARGER THAN ONE INCH IN DIAMETER ARE TO BE CUT CLEANLY. FOR OAKS ONLY, ALL WOUNDS SHALL BE PAINTED WITH WOUND SEALER WITHIN 30 MINUTES
11. REMOVE ALL TREES, SHRUBS OR BUSHES TO BE CLEARED FROM PROTECTED ROOT ZONE AREAS BY HAND.
12. TREES DAMAGED OR KILLED DUE TO CONTRACTOR'S NEGLIGENCE DURING CONSTRUCTION SHALL BE MITIGATED AT THE CONTRACTOR'S EXPENSE AND TO THE PROJECT OWNER'S AND LOCAL JURISDICTION'S SATISFACTION.
13. ANY TREE REMOVAL SHALL BE APPROVED BY THE OWNER AND LOCAL JURISDICTION PRIOR TO ITS REMOVAL, AND THE CONTRACTOR SHALL HAVE ALL REQUIRED PERMITS FOR SUCH ACTIVITIES.
14. COVER EXPOSED ROOTS AT THE END OF EACH DAY WITH SOIL, MULCH OR WET BURLAP.
15. IN CRITICAL ROOT ZONE AREAS THAT CANNOT BE PROTECTED DUING CONSTRUCTION AND WHERE HEAVY TRAFFIC IS ANTICIPATED, COVER THE SOIL WITH EIGHT INCHES OF ORGANIC MULCH TO MINIMIZE SOIL COMPACTION. THIS EIGHT INCH DEPTH OF MULCH SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
16. WATER ALL TREES IMPACTED BY CONSTRUCTION ACTIVITIES, DEEPLY ONCE A WEEK DURING PERIODS OF HOT DRY WEATHER. SPRAY TREE CROWNS WITH WATER PERIODICALLY TO REDUCE DUST ACCUMULATION ON THE LEAVES.
17. WHEN INSTALLING CONCRETE ADJACENT TO THE ROOT ZONE OF A TREE, USE A PLASTIC VAPOR BARRIER BEHIND THE CONCRETE TO PROHIBIT LEACHING OF LIME INTO THE SOIL.
18. CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL TREE PROTECTION FENCING WHEN ALL THREATS TO THE EXISTING TREES FROM CONSTRUCTION-RELATED ACTIVITIES HAVE BEEN REMOVED.



NOTES:
1. THE FENCING LOCATION SHOWN ABOVE IS DIAGRAMATIC ONLY AND WILL CONFORM TO THE DRIP LINE AND BE LIMITED TO PROJECT BOUNDARY. WHERE MULTIPLE ADJACENT TREES WILL BE ENCLOSED BY FENCING, THE FENCING SHALL BE CONTINUOUS AROUND ALL TREES.
2. FOR ACCEPTABLE FENCING MATERIALS SEE SPECIFICATIONS.

A TREE PROTECTION FENCE
SCALE: NOT TO SCALE

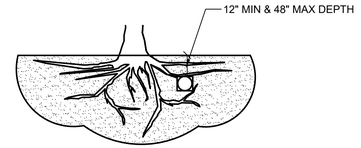


NOTES:
1. OPTION USED FOR TIGHT CONSTRUCTION AREAS OR WHEN CONSTRUCTION OCCURS IN ROOT PROTECTION ZONE.
2. FOR ACCEPTABLE FENCING MATERIALS SEE SPECIFICATIONS.

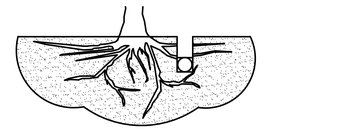
B TREE PROTECTION FENCE - TIGHT CONSTRUCTION
SCALE: NOT TO SCALE

TREES THAT ARE MARKED TO BE PRESERVED ON A SITE PLAN AND FOR WHICH UTILITIES MUST PASS TROUGH THEIR ROOT PROTECTION ZONES MAY REQUIRE TUNNELING AS OPPOSED TO OPEN TRENCHES. THE DECISION TO TUNNEL WILL BE DETERMINED ON A CASE BY CASE BASIS BY THE ENGINEER.

TUNNELS SHALL BE DUG THROUGH THE ROOT PROTECTION ZONE IN ORDER TO MINIMIZE ROOT DAMAGE.



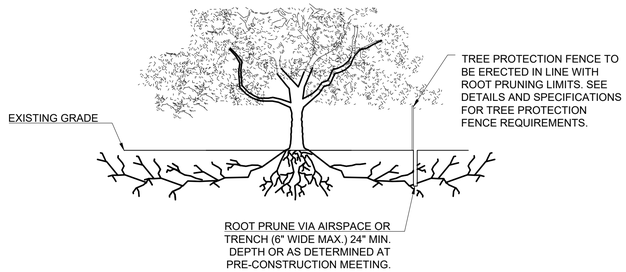
TUNNEL TO MINIMIZE ROOT DAMAGE (TOP) AS OPPOSED TO SURFACE-DUG TRENCHES IN ROOT PROTECTION ZONE WHEN THE 5' MINIMUM DISTANCE FROM TRUNK CAN NOT BE ACHIEVED.



OPEN TRENCHING MAY BE USED IF EXPOSED TREE ROOTS DO NOT EXCEED 3" OR ROOTS CAN BE BENT BACK.

C BORING THROUGH ROOT PROTECTION ZONE
SCALE: NOT TO SCALE

NOTES
1. RETENTION AREAS WILL BE SET AS PART OF THE REVIEW PROCESS AND PRE-CONSTRUCTION MEETING.
2. BOUNDARIES OF RETENTION AREAS MUST BE STAKED AT THE PRE-CONSTRUCTION MEETING AND FLAGGED PRIOR TO ROOT PRUNING.
3. EXACT LOCATION OF ROOT PRUNING SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE FORESTRY INSPECTOR .
4. TRENCH SHOULD BE IMMEDIATELY BACKFILLED WITH EXCAVATED SOIL OR OTHER ORGANIC SOIL AS SPECIFIED PER PLAN OR BY THE FORESTRY INSPECTOR.
5. ROOTS SHALL BE CLEANLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE EQUIPMENT. ROT PRUNING METHODS AND MEANS MUST BE IN ACCORDANCE WITH ANSI STANDARD A3000.
6. ALL PRUNING MUST BE EXECUTED AT LOD SHOWN ON PLANS OR AS AUTHORIZED IN WRITING BY THE FORESTRY INSPECTOR .
7. SUPPLEMENTAL WATERING MAY BE REQUIRED FOR ROOT PRUNED TREES THROUGHOUT THE GROWING SEASON DURING CONSTRUCTION AND SUBSEQUENT WARRANTY AND MAINTENANCE PERIOD.



D ROOT PRUNING DETAIL
SCALE: NOT TO SCALE

TREE PROTECTION GENERAL NOTES

(A) PRIOR TO THE LAND CLEARING STAGE OF DEVELOPMENT, THE CONTRACTOR SHALL CLEARLY MARK ALL PROTECTED TREES FOR WHICH A TREE REMOVAL PERMIT HAS NOT BEEN ISSUED AND SHALL ERECT BARRIERS FOR THE PROTECTION OF THE TREES ACCORDING TO THE FOLLOWING:
(1) AROUND AN AREA AT OR GREATER THAN A SIX-FOOT RADIUS OF ALL SPECIES OF MANGROVES AND PROTECTED CABBAGE PALMS;
(2) AROUND AN AREA AT OR GREATER THAN THE FULL DRIPLINE OF ALL PROTECTED NATIVE PINES;
(3) AROUND AN AREA AT OR GREATER THAN TWO-THIRDS OF THE DRIPLINE OF ALL OTHER PROTECTED SPECIES.

(B) NO PERSON SHALL ATTACH ANY SIGN, NOTICE OR OTHER OBJECT TO ANY PROTECTED TREE OR FASTEN ANY WIRES, CABLES, NAILS OR SCREWS TO ANY PROTECTED TREE IN ANY MANNER THAT COULD PROVE HARMFUL TO THE PROTECTED TREE, EXCEPT AS NECESSARY IN CONJUNCTION WITH ACTIVITIES IN THE PUBLIC INTEREST.

(C) DURING THE CONSTRUCTION STAGE OF DEVELOPMENT, THE CONTRACTOR SHALL NOT CAUSE OR PERMIT THE CLEANING OF EQUIPMENT OR MATERIAL WITHIN THE OUTSIDE PERIMETER OF THE CROWN (DRIPLINE) OR ON THE NEARBY GROUND OF ANY TREE OR GROUP OF TREES WHICH IS TO BE PRESERVED. WITHIN THE OUTSIDE PERIMETER OF THE CROWN (DRIPLINE) OF ANY TREE OR ON NEARBY GROUND, THE CONTRACTOR SHALL NOT CAUSE OR PERMIT STORAGE OF BUILDING MATERIAL AND/OR EQUIPMENT, OR DISPOSAL OF WASTE MATERIAL SUCH AS PAINTS, OIL, SOLVENTS, ASPHALT, CONCRETE, MORTAR OR ANY OTHER MATERIAL HARMFUL TO THE LIFE OF THE TREE.

(D) NO PERSON SHALL PERMIT ANY UNNECESSARY FIRE OR BURNING WITHIN 30 FEET OF THE DRIPLINE OF A PROTECTED TREE.

(E) ANY LANDSCAPING ACTIVITIES WITHIN THE BARRIER AREA SHALL BE ACCOMPLISHED WITH HAND LABOR.

(F) PRIOR TO ISSUING A CERTIFICATE OF OCCUPANCY OR COMPLIANCE FOR ANY DEVELOPMENT, BUILDING OR STRUCTURE, ALL TREES DESIGNATED TO BE PRESERVED THAT WERE DESTROYED DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR WITH TREES OF EQUIVALENT DIAMETER AT BREAST HEIGHT TREE CALIPER AND OF THE SAME SPECIES AS SPECIFIED BY THE CITY ADMINISTRATOR, BEFORE OCCUPANCY OR USE, UNLESS APPROVAL FOR THEIR REMOVAL HAS BEEN GRANTED UNDER PERMIT.

(G) THE CITY ADMINISTRATOR MAY CONDUCT PERIODIC INSPECTIONS OF THE SITE DURING LAND CLEARANCE AND CONSTRUCTION.

(H) IF, IN THE OPINION OF THE CITY ADMINISTRATOR, DEVELOPMENT ACTIVITIES WILL SO SEVERELY STRESS SLASH PINES OR ANY OTHER PROTECTED TREE SUCH THAT THEY ARE MADE SUSCEPTIBLE TO INSECT ATTACK, PREVENTATIVE SPRAYING OF THESE TREES BY THE CONTRACTOR MAY BE REQUIRED.

DUWEST ROCKWALL, TX

LEGAL DESCRIPTION AND OR ADDRESS:

STONE CREEK BALANCE LTD
ABSTRACT. NO 131
8.684 AC (378,275 SF)

OWNER:
DuWEST REALTY, LLC
4403 N.CENTRAL EXWAY SUITE #200
DALLAS, TX 75025
CONTACT: BOWEN HENDRIX
PH: 214.918.1804

APPLICANT:
CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
PH: 817.281.0572

CASE NUMBER
Z2022-003

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING AND ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____.

WITNESS OUR HANDS THIS ____ DAY OF _____.

_____
PLANNING AND ZONING COMMISSION, CHAIRMAN

_____
DIRECTOR OF PLANNING AND ZONING

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM
1903 CENTRAL DR, SUITE #406
BEDFORD, TX 76021

REGISTERED LANDSCAPE ARCHITECT
DARCY R. BRANDON
3423
STATE OF TEXAS

10/13/2022

DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

EVERGREEN DESIGN GROUP
(800) 680-6630
15455 Dallas Pkwy., Ste 600
Addison, TX 75001
www.EvergreenDesignGroup.com

TREESCAPE DETAILS & SPECIFICATIONS

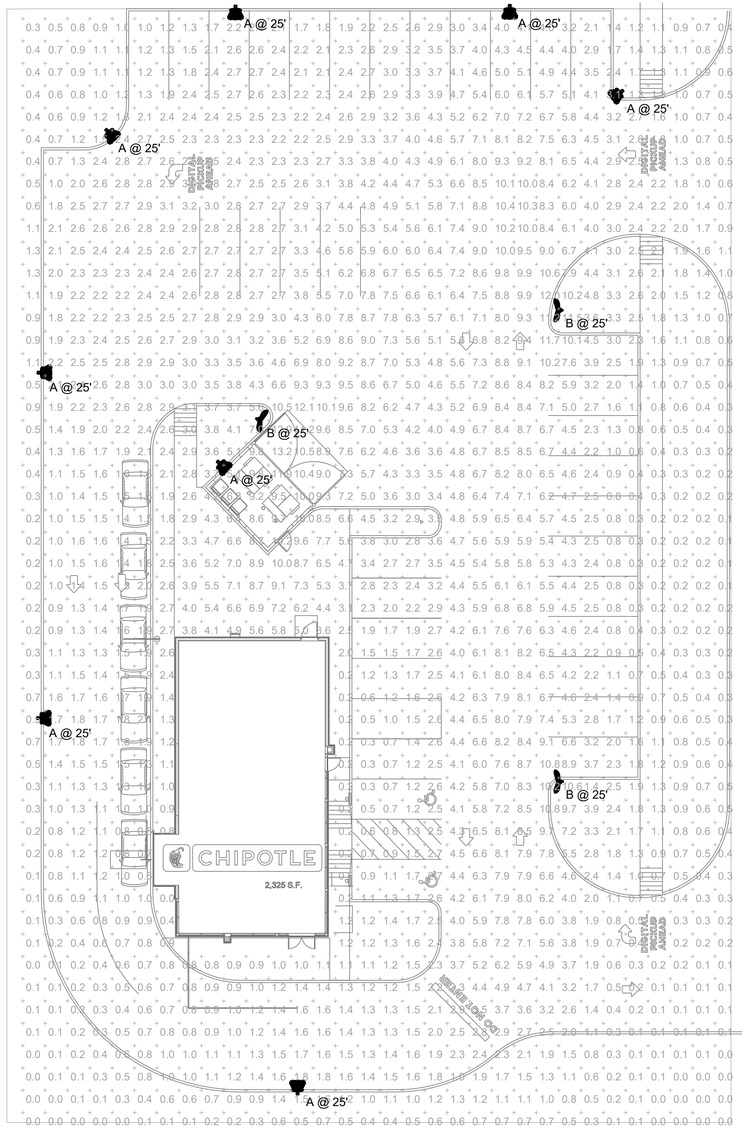
DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	10/13/2022

SHEET
TD-3

File No. 2022-002

CASE # SP2022-042

PLOTTED BY: DARCY BRANDON
PLOT DATE: 10/13/2022 3:13 PM
LOCATION: C:\USERS\DARCY\DOCUMENTS\DBLA_PROJECTS\2022\EDG\CHIPOLTE DUWEST - ROCKWALL, TX\XREF'S\2022-10-10 DUWEST ROCKWALL PHASE 2.DWG
LAST SAVED: 10/13/2022 3:10 PM



COIT ROAD

Plan View
Scale - 1" = 20ft

Schedule

Symbol	Label	Image	QTY	Manufacturer	Catalog	Description	Number Lamps	Lamp Output	LLF	Input Power	Polar Plot
	A		8	Beacon Products	VP-1-36L-39-4K7-4F	VIPER	1	5465	1	39.6	Max: 6136cd
	B		3	BEACON PRODUCTS	VP-2-320L-185-4K7-2		1	26667	1	185.7	Max: 28295cd

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Site	+	3.0 fc	13.2 fc	0.0 fc	N/A	N/A

Consultant:

ARCHITECT OF RECORD

ROGUE ARCHITECTS

513 MAIN STREET, SUITE 300
FORT WORTH, TEXAS 76102
(817) 820-0433

STATE OF TEXAS
DARRELL ROY CASE
82433
REGISTERED
PROFESSIONAL ENGINEER

12/09/2022

DUWEST
CREATING, ENHANCING & PROTECTING VALUE

ROCKWALL NORTH SHELL
SH205 & QUAIL RUN ROAD
ROCKWALL, TX

Issue Record:

Revisions:

Drawn:	Checked:
JJV	BW

Project No.
ROGUE #22-0547

Contents:
SITE PHOTOMETRIC

E002

CASE Engineering Inc.

796 Merus Court
St. Louis, MO 63026
T 636.349.1600
F 636.349.1730
CERTIFICATE OF AUTHORITY NO. F-20080

STATE HIGHWAY 205
100' RIGHT-OF-WAY

N 14°18'55" W 490.04'

EROSION HAZAD SETBACK & DRAINAGE ESMT.

EX. WINGED HEADWALL

EX. 24" RCP

PROP. WINGED HEADWALL

PROP. 18" RCP

PROP. 18" RCP

PROP 5' CURB INLET

PROP. 18" RCP

PROP 5' CURB INLET

PROP. 18" RCP

PROP. GREASE TRAP

PROP. 6" SSWR

PROP. 6" SSWR

DIGITAL PICKUP AHEAD

EX. 18" RCP

PROP 5' CURB INLET

EX. 12" WL

FIRE LANE, PUBLIC ACCESS AND UTILITY ESMT.

PROP. 2" WL

PROP. 6" FIRE LINE

CONNECT 2" PROP. WATERLINE TO 2" DOMM. METER STUB

CONNECT PROP. 6" SSWR TO EXISTING 6" SSWR STUB

PROP. 6" SSWR

CONNECT 6" FIRE LINE TO EX. 6" STUB

2" IRR. METER

EX. 8" SSWR

FIRE LANE, PUBLIC ACCESS AND UTILITY ESMT.

EX. 2" WL

EX. 12" WL

N 54°44'31" W 165.14'

25' WIDE MUTUAL ACCESS ESMT.

CONNECT ELECTRIC AND COMM LINE TO EX. POWER POLE

CIRS

CIRS

TRM X OUT

PLOTTED BY: LYNN ROWLAND
PLOT DATE: 12/12/2022 8:34 AM
LOCATION: Z:\PROJECTS\PROJECTS\2022-175 DUWEST ROCKWALL PH. 2\CADD\EXHIBIT\PRELIMINARY UTILITY PLAN.DWG
LAST SAVED: 10/11/2022 2:14 PM

GRAPHIC SCALE
20 0 10 20 40
1 inch = 20 ft.

LEGEND	
W	EXISTING WATER MAIN
SS (S)	EXISTING SANITARY SEWER AND MANHOLE
W	PROPOSED WATER LINE
SS (S)	PROPOSED SANITARY SEWER LINE AND MANHOLE
SS	PROPOSED SANITARY SEWER LINE AND CLEAN OUT
COMM	PROPOSED COMMUNICATION LINE
UGE	PROPOSED UNDERGROUND ELECTRICAL LINE
	EXISTING OVERHEAD POWER LINE

LEGEND	
695	EX. CONTOURS
	STORM DRAIN
	CURB INLET

DUWEST ROCKWALL PH 2, TX

LEGAL DESCRIPTION AND OR ADDRESS:

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ABSTRACT. NO 131
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WITNESS OUR HANDS THIS ____ DAY OF _____.

_____
PLANNING AND ZONING COMMISSION, CHAIRMAN

_____
DIRECTOR OF PLANNING AND ZONING

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
1903 CENTRAL DR, SUITE #406
BEDFORD, TX 76021
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM

PRELIMINARY
FOR REVIEW ONLY
Not for construction purposes.
CLAYMOORE ENGINEERING
ENGINEERING AND PLANNING CONSULTANTS
Engineer DREW DONOSKY
P.E. No. 125651 Date 12/12/2022

DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

PRELIMINARY UTILITY PLAN

DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	12/12/2022

SHEET
C-1

File No. 2022-002

CASE #

513 Main Street
Suite 300
Fort Worth, Texas 76102
Office: 817.820.0433
Fax: 682.224.8917
roguearchitects.com

ROGUE ARCHITECTS

December 7, 2022

Chipotle Mexican Grill (Shell)
NWQ N. Goliad & E. Quail Run Rd
Rockwall, TX 75087

On behalf of DuWest Realty, we wish to submit a variance request to the City of Rockwall Planning and Zoning Department as part of our façade elevation plan submittal.

Chipotle Mexican Grill, to be located in Stone Creek Balance Ltd. Abstract No. 131 proposed new build will use materials consistent with the surrounding building in the overlay district. The design incorporates cantilevered canopies, recesses and projections (main entry), an outdoor patio, architecturally detailed herringbone brick on the pickup lane side of the building, an articulated cornice line, and varied parapet heights.

We request the following variance:

1. Roof Design Standards: Pitched roof for buildings under 6,000 sqft.
    a. Additional masonry detailing has been provided to exceed architectural design requirements. Owner wishes the be granted a variance to preserve corporate identity.

Thank you for your consideration,

Taylor Grandorf
Architect | Project Manager
817-820-0433

BANNISTER
ENGINEERING

FLOOD STUDY

FOR

Stone Creek Retail
Located in Rockwall
Rockwall County, Texas
OF
Tributary D of Squabble Creek

PREPARED FOR:
DuWest
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Dallas, TX 75205

PREPARED BY:
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Date: March 15, 2022

3-15-2022

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1. INTRODUCTION

The proposed commercial development is about 8.6 acres located near the northeast corner of North Goliad Street and East Quail Run Road in the City of Rockwall in Rockwall County, Texas. See the Location Map (Exhibit 1).

Squabble Creek Tributary D runs from east to west through the site. A LOMR was done in August 29, 2014. The LOMR is shown on the Effective FIRM panel dated 9-26-2008 (48397C0030L) is included as Exhibit 2.

The purpose of this submittal is to provide sufficient documentation in accordance with sound engineering standards and practices to demonstrate that the development will not cause any adverse impact in accordance to the City's Squabble Creek Watershed ordinance.

2. HYDROLOGY

2.1.Methodology

The following information about hydrology is not intended to revise discharges used in stream modeling by FEMA. The intent is to demonstrate the development's impact on hydrology. The Squabble Creek Watershed hydrology model and GIS files were provided by the City. The model provided was HEC-HMS V4.2.1. Discrepancies in the drainage boundaries were discovered in and near the site. The drainage boundary east of the site did not match the drainage pattern around the fire station. Also, the drainage boundary did not match the drainage pattern along East Quail Run Road. The hydrology model had the CN for "SQ036" at a developed rate. The drainage areas and CN's were recalculated for the impacted drainage areas "SQ012", "SQ015b", "SQ034e", "SQ034f", and "SQ036". The time of concentration was recalculated for subbasin "SQ036". This is the basis for the pre-project hydrology model. This study will compare the results from the effective/revised existing hydrology to the pre-project and the post-project hydrology. The comparison uses design points from upstream of the site to the very downstream end of the model at Lake Ray Hubbard. This study uses the same HEC-HMS version for consistency. It was not updated to the latest HEC-HMS version. The 5-year (20% annual chance), 10-year (10% annual chance), 25-year (4% annual chance), 50-year (2% annual chance), and 100-year (1% annual chance) conditions were modeled. The post-project 100-year fully developed conditions were modeled to determine fill elevations to provide the required 2' of freeboard. The HEC-HMS files are located on the CD.

2.2.Drainage Basin Characteristics

The drainage basin of Squabble Creek Tributary D at the site (North Goliad Street) is about 135.3 acres. The site is 6% of the contributing area. Normally, this location would be the end of the analysis because the limit of the zone of influence is at the point where the contributing area is less than 10% of the overall area. The Squabble Creek Watershed ordinance requires the analysis to be reviewed all the way to Lake Ray Hubbard. All drainage areas upstream of the site are fully developed. The drainage boundaries mentioned previously were corrected for subbasins "SQ012", "SQ015b", "SQ034e", "SQ034f", and "SQ036". These subbasins are shown on the Pre-Project Drainage Area Map Exhibit 6. The areas and CN's were recalculated. In the proposed conditions the drainage boundary for subbasin "SQ034f" was revised. A land use map is shown on Exhibit 8. The runoff Curve Numbers (CN) were obtained from the City of Rockwall's drainage manual. The CN's were adjusted to conform to AMC-3. The hydrologic soil groups in the drainage

area are mostly D soils with some B soils. A soils map is shown on Exhibit 8. The existing hydrology calculations are shown on Exhibit 7.

The proposed drainage areas were revised by directing 1.72 acres of subbasin "SQ036" to the existing detention pond. The existing detention pond will be expanded which will capture 0.47 acres from subbasin "SQ034f". These two revisions increased subbasin "SQ034e" by 2.19 acres. The proposed drainage area map is included as Exhibit 9. A proposed land use and soils map is shown on Exhibit 11.

2.3.Time of Concentration

The Time of Concentration (T_C) was recalculated for "SQ034e", SQ034f", and for "SQ036", which contains the site. Tc was calculated based on methods outlined in the NCTCOG hydrology manual. The four types of flows that were used in calculating T_C was sheet flow, shallow concentrated flow, pipe flow, and channel flow. The T_C was located where the highest T_C was generated. The T_C paths are shown on Exhibit 6. The formula to calculate T_C for sheet flow uses runoff coefficients for land use. A maximum distance of 100' was used for sheet flow. The formula for calculating average velocity for shallow concentrated flow uses a coefficient of 16.13 for unpaved and 20.33 for paved conditions. Channel flow was estimated at 6 ft/sec. The SCS Unit Hydrograph method requires a Lag Time (T_{lag}). T_{lag} is 60% of T_C. The existing T_C calculation is shown on Exhibit 7.

The existing T_C that travels through the site was modified for conceptual proposed conditions. The travel path, inlet location, and storm pipe location were assumed. The calculation is shown on Exhibit 10.

2.4.Storm Characteristics

This element of the hydrology modeling was not revised from the original method.

2.5.Stream Routing

There are two stream routings that were revised based on the update made to the HEC-RAS model. Reaches "R_SQ015e" and "R_SQ015f". The routing method for these is "Modified Puls". This method requires a floodplain storage-discharge relationship. This is created with the HEC-RAS model. The tables for these two routings are shown on Exhibit 7. The HEC-RAS model is included on the CD.

The development fills a portion of the floodplain. As a result, it decreases floodplain storage. Excavation within the floodplain helps to offset the loss. The routings for reaches "R_SQ015e" and "R_SQ015f" were updated based on the proposed grading within the floodplain. The tables for these two routings are shown on Exhibit 10. The HEC-RAS model is included on the CD.

2.6.Detention

There are numerous detention structures modeled in the hydrology for the Squabble Creek watershed. The Stone Creek Phase 7 subdivision built a large detention pond ("Stone Creek Phase 7") near the site. The existing berm is about 9 feet tall. It has a maximum volume of 22.15 acre-feet at the top of the berm. This detention pond will be expanded for the proposed development. The modeling of the existing pond was reviewed. It was determined that the volume of the pond needed to be more accurately measured. The elevation-area table was developed from the construction plans of the pond. The calculation is shown on Exhibit 7. The applicable sheet is included on the CD. The pond

volume calculations were not found. The calculation was recreated by tracing contours from the grading plan.

The development is including the expansion of the existing detention pond to help offset negative impacts. The expansion will increase the volume to 24.42 acre-ft. The height of the existing berm will not be increased. Even though the height of the dam is above the 6-foot threshold for dam regulation, the volume is below the 50 acre-ft threshold for dam regulation. An emergency spillway will be added to the berm at 500.0. The outlet structure is to remain the same. A basic grading plan is included as Exhibit 20. More detailed information for the grading and the detention pond will be shown on the civil plans. Table 1 shows the results of the proposed detention pond which demonstrates a freeboard in excess of 2 feet as measured from the top of the berm.

TABLE 1

PROPOSED DETENTION POND SUMMARY

Storm Event	Discharge In	Top of Berm	Max. Storage	Discharge Out	Peak Elevation	Utilized Storage	Freeboard
	(cfs)		(ac.ft.)	(cfs)		(ac.ft.)	(ft)
100-YEAR	419.8	502	24.42	127.9	499.66	15.21	2.34
25-YEAR	327.8	502	24.42	70.2	498.83	12.21	3.17
10-YEAR	278.9	502	24.42	64.8	498.15	9.87	3.85
5-YEAR	230.3	502	24.42	58.8	497.47	7.62	4.53

2.7.Results

Table 2 demonstrates the results of the revisions made to the MDS hydrology model by the pre-project model. Tributary D had a maximum increase of 11.0 cfs (2.3%). The maximum decrease in Tributary D is 2.1 cfs (0.1%). There were no increases in Squabble creek. Squabble Creek had a maximum decrease of 9.0 cfs (0.3%)

TABLE 2

MDS/PRE-PROJECT 100-YEAR DISCHARGE SUMMARY

MDS		PRE-PROJECT		
DESIGN POINT	DISCHARGE	DESIGN POINT	DISCHARGE	DIFFERENCE
	(cfs)		(cfs)	(cfs)
SQ012	169.0	SQ012	164.3	-4.7
SQ015b	35.2	SQ015b	34.5	-0.7
SQ034a	203.9	SQ034a	203.9	0.0
SQ034b	236.7	SQ034b	236.7	0.0
SQ034c	83.9	SQ034c	83.9	0.0
SQ034d	103.9	SQ034d	103.9	0.0
SQ034e	380.9	SQ034e	403.8	22.9
SQ034f	67.8	SQ034f	52.9	-14.9
SQ034g	92.4	SQ034g	92.4	0.0
SQ036	86.4	SQ036	77.8	-8.6
Stone Creek Phase 7	130.3	Stone Creek Phase 7	136.3	6.0
J_SQ008	509.7	J_SQ008	508.9	-0.8
J_SQ009	531.5	J_SQ009	530.7	-0.8
J_SQ010	1125.5	J_SQ010	1125.2	-0.3
J_SQ021	2377.7	J_SQ021	2376.1	-1.6
J_SQ023	2429.2	J_SQ023	2427.6	-1.6
J_SQ024	2425.0	J_SQ024	2423.0	-2.0
J_SQ025	2680.3	J_SQ025	2678.2	-2.1
J_SQ026c	447.8	J_SQ026c	447.8	0.0
J_SQ026d	475.0	J_SQ026d	486.0	11.0
J_SQ026e	474.1	J_SQ026e	477.9	3.8
J_SQ026f	472.4	J_SQ026f	477.1	4.7
J_SQ026g	431.5	J_SQ026g	430.7	-0.8
J_SQ027	436.5	J_SQ027	435.4	-1.1
J_SQ029	595.5	J_SQ029	594.4	-1.1
J_SQ030	3206.7	J_SQ030	3206.1	-0.6
J_SQ031	2776.8	J_SQ031	2770.9	-5.9
J_SQ034	3032.3	J_SQ034	3023.6	-8.7
J_SQ035	2999.3	J_SQ035	2992.0	-7.3
J_SQ037	3006.3	J_SQ037	2997.4	-8.9
J_SQ039	3080.6	J_SQ039	3071.6	-9.0
J_SQ040	3188.2	J_SQ040	3185.4	-2.8
J_SQ041	3529.5	J_SQ041	3525.4	-4.1

Initially, the development had a negative impact on discharges. About 95% of the impact is due to filling within the floodplain thereby reducing floodplain storage. Two actions were

done to reverse the negative impacts. One action that was done was to expand the existing Stone Creek Phase 7 detention pond and diverting 1.72 acres from the site to the pond. The second action that was done was to excavate within the floodplain to increase floodplain storage. The results are shown on Table 3. There is an increase in flow of 16.0 cfs from subbasin "SQ034e" which drains to the Stone Creek Phase 7 detention pond, but the detention pond reduces the discharge by 8.4 cfs (6.2%) compared to the pre-project conditions. Subbasin "SQ036" which contains the site has a decrease in discharge of 6.1 cfs but at the point where flows are joined in Tributary D and leaves the property ("J_SQ026g") the discharge is reduced by 7.4 cfs (1.7%). Tributary D had a maximum decrease of 11.4 cfs (2.3%). There are no increases in discharge in Tributary D. The greatest reduction in discharge in Squabble Creek is 19.8 cfs (0.6%). There are no increases in discharge in Squabble Creek. See Exhibit 10 for detention results.

TABLE 3

PRE-PROJECT/POST-PROJECT 100-YEAR COMPARISON					
PRE-PROJECT		POST-PROJECT			MDS
DESIGN POINT	DISCHARGE (cfs)	DESIGN POINT	DISCHARGE (cfs)	DIFFERENCE (cfs)	DISCHARGE
SQ034e	403.8	SQ034e	419.8	16.0	380.9
SQ034f	52.9	SQ034f	49.4	-3.5	67.8
SQ036	77.8	SQ036	71.7	-6.1	86.4
Stone Creek Phase 7	136.3	Stone Creek Phase 7	127.9	-8.4	130.3
J_SQ026d	486.0	J_SQ026d	474.6	-11.4	475.0
J_SQ026e	477.9	J_SQ026e	469.0	-8.9	474.1
J_SQ026f	477.1	J_SQ026f	473.6	-3.5	472.4
J_SQ026g	430.7	J_SQ026g	423.3	-7.4	431.5
J_SQ027	435.4	J_SQ027	428.0	-7.4	436.5
J_SQ029	594.4	J_SQ029	586.9	-7.5	595.5
J_SQ030	3206.1	J_SQ030	3186.3	-19.8	3206.7
J_SQ031	2770.9	J_SQ031	2757.6	-13.3	2776.8
J_SQ034	3023.6	J_SQ034	3010.4	-13.2	3032.3
J_SQ035	2992.0	J_SQ035	2978.7	-13.3	2999.3
J_SQ037	2997.4	J_SQ037	2985.8	-11.6	3006.3
J_SQ039	3071.6	J_SQ039	3060.1	-11.5	3080.6
J_SQ040	3185.4	J_SQ040	3185.4	0.0	3188.2
J_SQ041	3525.4	J_SQ041	3525.4	0.0	3529.5

Table 4 shows the comparison between Stone Creek Phase 7 hydrology and the post-project hydrology.

TABLE 4

STONE CREEK PH 7		POST-PROJECT		
DESIGN POINT	DISCHARGE	DESIGN POINT	DISCHARGE	DIFFERENCE
	(cfs)		(cfs)	(cfs)
Subbasin 6	396.7	SQ034e	419.8	23.1
Subbasin 8	71.0	SQ034f	49.4	-21.6
Subbasin 7	89.8	SQ036	71.7	-18.1
Reservoir-2 FD	131.8	Stone Creek Phase 7	127.9	-3.9
Junction 2A	478.4	J_SQ026d	474.6	-3.8
Junction 3	477.5	J_SQ026e	469.0	-8.5
Junction 4	475.5	J_SQ026f	473.6	-1.9
Junction 5	433.0	J_SQ026g	423.3	-9.7

3. HYDRAULICS

3.1.Effective Model

The FEMA effective hydraulic model was requested from FEMA. The model is HEC-RAS 4.1.0 from the Stone Creek Phase 4 LOMR dated 8-29-2014. The FEMA 100-year water surface elevations are shown on Table 5. The effective 100-year floodplain and cross sections are shown on Exhibit 12. The output is included as Exhibit 4. The stream profile is included as Exhibit 5. The HEC-RAS model is found on the CD. The plan name is "Effective".

The MDS hydraulic model from the Master Drainage Study was obtained from the City. The version used was 5.0.7. The basis of the model is the Stone Creek Phase 4 LOMR. The City has maintained and updated the model separately from FEMA's model. As a result, certain areas are more up-to-date. This model will not be sent to FEMA for their review as it would entail revisions well beyond the impact of the development. The MDS 100-year water surface elevations are shown on Table 6. The HEC-RAS model is found on the CD. The plan name is "Revised Existing".

3.2.Pre-Project Model

The FEMA effective model was revised and ran with the same HEC-RAS version to eliminate any differences of results between versions. The plan name is "Pre-Project".

The entire property was surveyed by Corwin Engineering in 2016 for topography which includes the channel. Bannister Engineering surveyed sections at the channel in August 2021. Cross sections 1202 to 1622 were updated with the survey. Ineffective flow limits were added to the upstream side of North Goliad Street at cross section 1202. No other revisions were made to the modeling of North Goliad Street. Cross section 1538 was removed and was replace with cross sections 1513 and 1563. The n-values were not revised. The pre-project 100-year floodplain was mapped and shown on Exhibit 12. The maximum increase was 0.06 feet located just upstream of the site. The maximum decrease was 0.01 feet located on the upstream side of North Goliad Street.

The MDS model was revised and ran with the same HEC-RAS version to eliminate any differenced of results between versions. The 100-year (1% annual chance) fully developed discharges were used in the model. The plan name is "Pre-Project".

The same revisions that were done to the FEMA effective model was done to the MDS model. Plus, corrections were made to North Goliad Street. The downstream side had been updated from the FEMA model which introduced some errors that the FEMA model does not have. The stationing of the weir no longer matched the stationing of cross section 1076. The stationing of the downstream weir was adjusted to be consistent with the upstream weir. The downstream culvert stationing was adjusted so that it is now located within the channel. The distance from the "deck" to the upstream cross section was corrected. Discharges were updated based on the results of the pre-project hydrology model. The discharges for the entire hydraulic model was reviewed and revised where deemed appropriate. The pre-project drainage area map shows the discharge locations that were applied to the hydraulic model. The MDS pre-project 100-year floodplain was mapped and shown on Exhibit 12. The maximum increase was 0.35 feet located on the upstream side of Pecan Valley Drive. This was due to correcting the discharge. The maximum decrease was 0.27 feet located upstream of Harvard Drive. This was due to correcting the discharge. The plan name is "Pre-Project".

The FEMA and MDS 100-year water surface elevations are shown on Table 5 and Table 6, respectively. The location of the cross sections are shown on Exhibit 12. The output is included as Exhibit 13. The stream profile and cross sections are included as Exhibit 14 and Exhibit 15, respectively.

3.3.Post-Project Model

The pre-project FEMA model and pre-project MDS model was modified in the same way with the exception to discharges to create the post-project model. The proposed changes to the model are as follows:

- Fill was added to cross sections 1202 to 1622. The n-value for the fill slope was changed to 0.045.
- An excavated area was added to cross sections 1422 to 1622. The purpose of this is for creating additional floodplain storage to help offset the reduction in floodplain storage caused by the fill.
- MDS only: The hydrology was updated for post-project conditions.

The post-project FEMA model showed no increases in the water surface elevations compared to the pre-project FEMA model. The maximum decrease is 0.03 feet. The plan name is "Post-Project".

The MDS post-project model showed a maximum increase was 0.02 feet located at cross section 2028. This is due to the reduction of discharge at a cross section with a depressed water surface elevation. The plan name is "Post-Project".

The FEMA and MDS 100-year water surface elevations are shown on Table 5 and Table 6, respectively. The modifications, location of the cross sections, and the FEMA and MDS proposed floodplains are shown on Exhibit 16. The output is included as Exhibit 17. The stream profile is included as Exhibit18. The cross sections are included as Exhibit 19.

The Erosion Hazard Setback is a requirement within the City. In general, it is determined by locating the toe of the channel and extending a line up at a slope of 4:1 until it daylights, plus

15 feet beyond. In this situation, there is not a well defined channel. As a result, the toe of the channel is not apparent on some of the cross sections. In this situation, the 4:1 slope is extended up from the flow line until it intersects with the fully developed 100-year floodplain. The drainage easement that contains the Erosion Hazard Setback was determined by offsetting the previously mentioned floodplain by 10 feet. This was all done in accordance to "Scenario 2 (Erosion Hazard Setback within Floodplain)" that is found in the Standards of Design and Construction for the City of Rockwall dated October 2019. The Erosion Hazard Setback and Drainage Easement are shown on Exhibits 16 and 20. The development of these are graphically shown on the Post-Project Cross Section, Exhibit 19.

3.4.Results

The hydraulic modeling results shown in Table 6 show a rise in water surface elevation at cross section 2028. The 0.02' rise is within the HOA lot. Fill elevations and finished floor elevations will be based on the proposed 100-year water surface elevations which uses fully developed discharges.

4. CONCLUSION

This study shows that this project will increase the 100-year water surface elevation which is located on the HOA lot. Permission can be obtained for this rise. Permissions will be obtained for offsite grading. We do not believe this project will hinder any potential development on properties adjacent to this development or downstream of the project.

The minimum fill elevations shall be 2 foot above the 100-year water surface elevations. The minimum finished floor elevations shall be a minimum 2' above the 100-year water surface elevations.

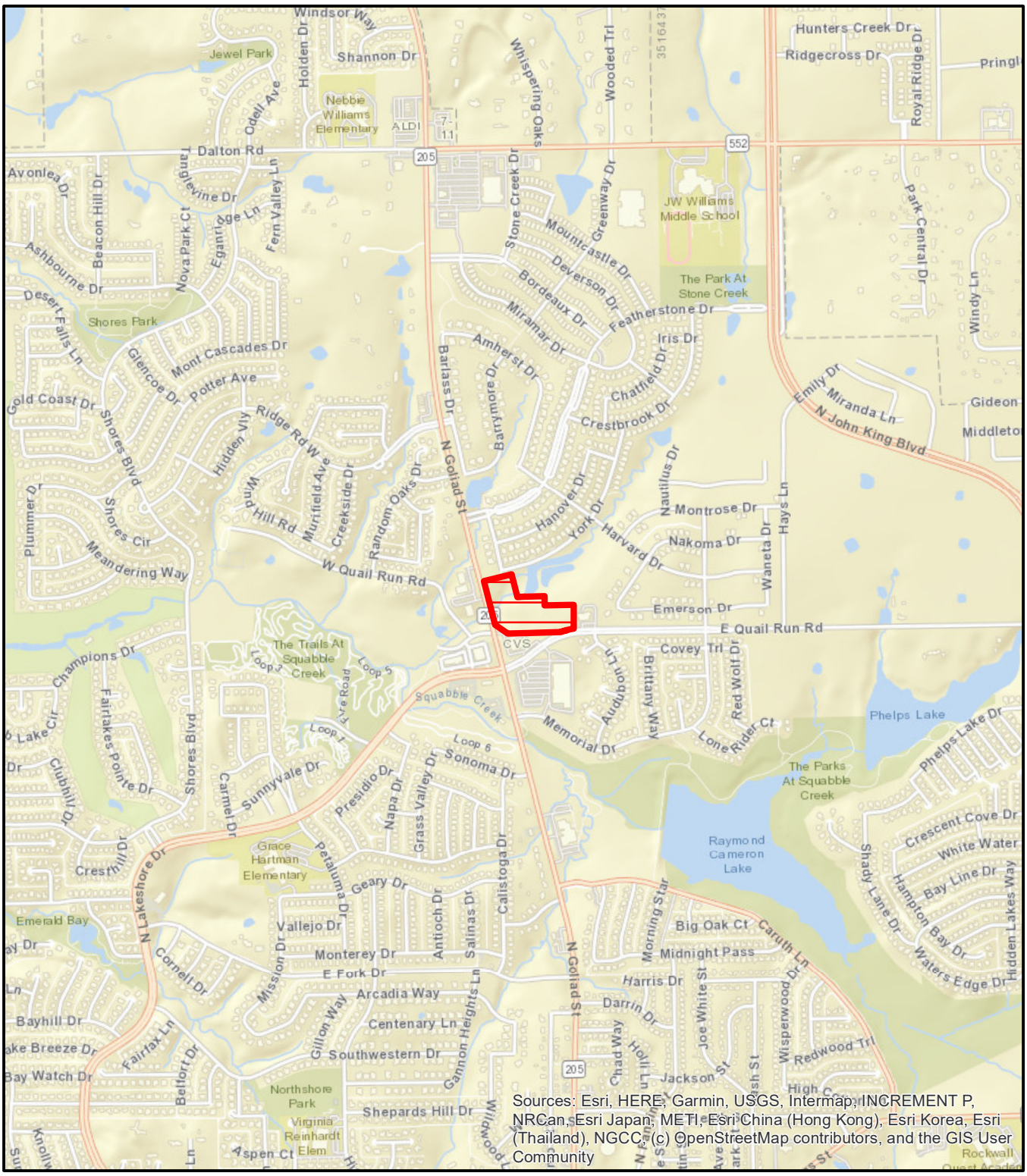
When there is sufficient grading completed a LOMR can be provided using FEMA's effective model.

TABLE 5

FEMA WATER SURFACE COMPARISON							
Effective		Pre-Project			Post-Project		
STATION	W.S. Elev.	STATION	W.S. Elev.	Difference	STATION	W.S. Elev.	Difference
1973	492.07	1973	492.07	0.00	1973	492.07	0.00
1917	491.74	1917	491.74	0.00	1917	491.74	0.00
1716	480.54	1716	480.60	0.06	1716	480.60	0.00
SITE							
1622	480.38	1622	480.38	0.00	1622	480.35	-0.03
		1563	480.36		1563	480.34	-0.02
1538	480.35						
		1513	480.35		1513	480.34	-0.01
1422	480.32	1422	480.33	0.01	1422	480.33	0.00
					1328	480.33	
1284	480.32	1284	480.32	0.00	1284	480.32	0.00
1202	480.31	1202	480.30	-0.01	1202	480.30	0.00
SITE							
N. Goliad St							
1076	474.20	1076	474.20	0.00	1076	474.20	0.00
1026	471.40	1026	471.40	0.00	1026	471.40	0.00

TABLE 6

MDS WATER SURFACE COMPARISON										
Effective			Pre-Project				Post-Project			
STATION	Q	W.S. Elev.	STATION	Q	W.S. Elev.	Difference	STATION	Q	W.S. Elev.	Difference
4830	441	521.17	4830	441	521.17	0.00	4830	441	521.17	0.00
4587	441	519.73	4587	441	519.73	0.00	4587	441	519.73	0.00
4437	386	519.73	4437	378	519.73	0.00	4437	378	519.73	0.00
Pond Culvert										
4291	386	513.12	4291	378	513.11	-0.01	4291	378	513.11	0.00
4188	386	511.11	4188	378	511.11	0.00	4188	378	511.11	0.00
3967	386	505.62	3967	378	505.59	-0.03	3967	378	505.59	0.00
3831	386	503.30	3831	378	503.29	-0.01	3831	378	503.29	0.00
3669	386	501.84	3669	386	501.84	0.00	3669	386	501.84	0.00
3525	386	500.23	3525	386	500.08	-0.15	3525	386	500.08	0.00
3310	448	498.42	3310	386	498.15	-0.27	3310	386	498.15	0.00
3134	448	496.63	3134	386	496.48	-0.15	3134	386	496.48	0.00
2997	475	494.51	2997	448	494.40	-0.11	2997	448	494.40	0.00
Harvard Dr										
2917	475	493.61	2917	448	493.56	-0.05	2917	448	493.56	0.00
2800	475	493.55	2800	448	493.54	-0.01	2800	448	493.51	-0.03
2677	475	493.09	2677	448	493.16	0.07	2677	448	493.11	-0.05
2550	475	493.09	2550	448	493.16	0.07	2550	448	493.10	-0.06
2396	472	493.04	2396	486	493.11	0.07	2396	475	493.06	-0.05
2200	472	492.92	2200	486	492.99	0.07	2200	475	492.94	-0.05
2028	472	491.59	2028	486	491.55	-0.04	2028	475	491.57	0.02
1973	472	492.06	1973	486	492.06	0.00	1973	475	492.05	-0.01
1917	472	491.74	1917	478	491.74	0.00	1917	469	491.74	0.00
1716	472	480.56	1716	478	480.55	-0.01	1716	469	480.42	-0.13
SITE										
1622	432	480.42	1622	477	480.26	-0.16	1622	474	480.01	-0.25
			1563	477	480.24		1563	474	480.00	-0.24
1538	432	480.38								
			1513	477	480.22		1513	474	479.99	-0.23
1422	432	480.36	1422	477	480.20	-0.16	1422	474	479.98	-0.22
							1328	474	479.97	
1284	432	480.35	1284	477	480.19	-0.16	1284	474	479.97	-0.22
1202	437	480.35	1202	431	480.16	-0.19	1202	423	479.94	-0.22
SITE										
N. Goliad St										
1076	437	474.19	1076	431	474.14	-0.05	1076	423	474.08	-0.06
1026	437	471.30	1026	431	471.28	-0.02	1026	423	471.25	-0.03
981	437	470.98	981	431	470.96	-0.02	981	423	470.93	-0.03
918	437	469.61	918	431	469.58	-0.03	918	423	469.55	-0.03
833	437	467.72	833	435	467.71	-0.01	833	428	467.68	-0.03
W. Quail Run Rd										
802	437	467.67	802	435	467.66	-0.01	802	428	467.64	-0.02
726	437	467.10	726	435	467.09	-0.01	726	428	467.07	-0.02
635	437	465.93	635	435	465.96	0.03	635	428	465.94	-0.02
619	437	465.27	619	435	465.47	0.20	619	428	465.45	-0.02
495	437	461.68	495	594	462.03	0.35	495	587	462.02	-0.01
Pecan Valley Dr										
393	437	461.26	393	594	461.51	0.25	393	587	461.50	-0.01



Legend

Site

STONE CREEK RETAIL

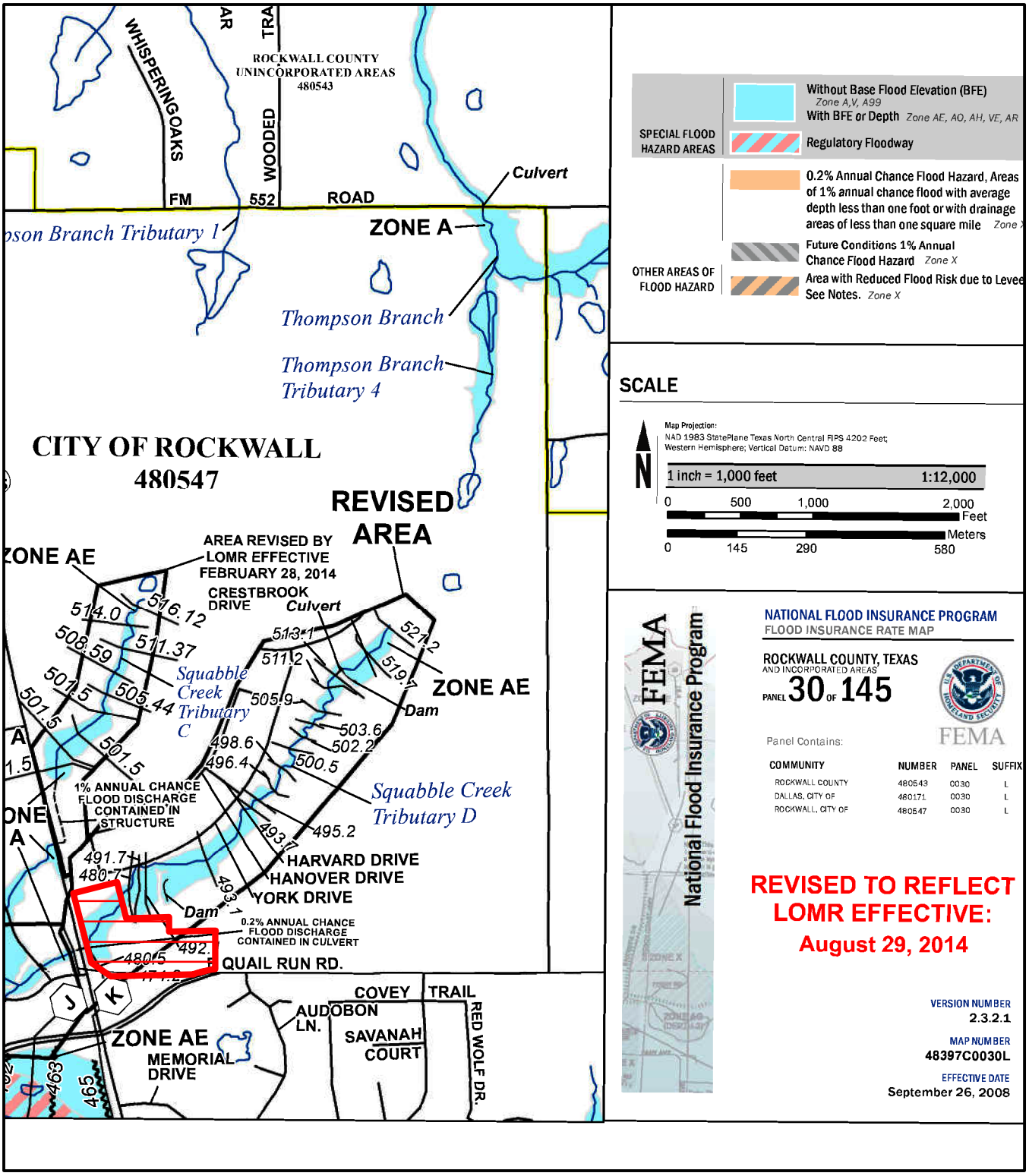
BANNISTER ENGINEERING

1 in = 0.3 miles

0 0.075 0.15 0.3 Miles

LOCATION MAP

EXHIBIT 1



Legend

Site

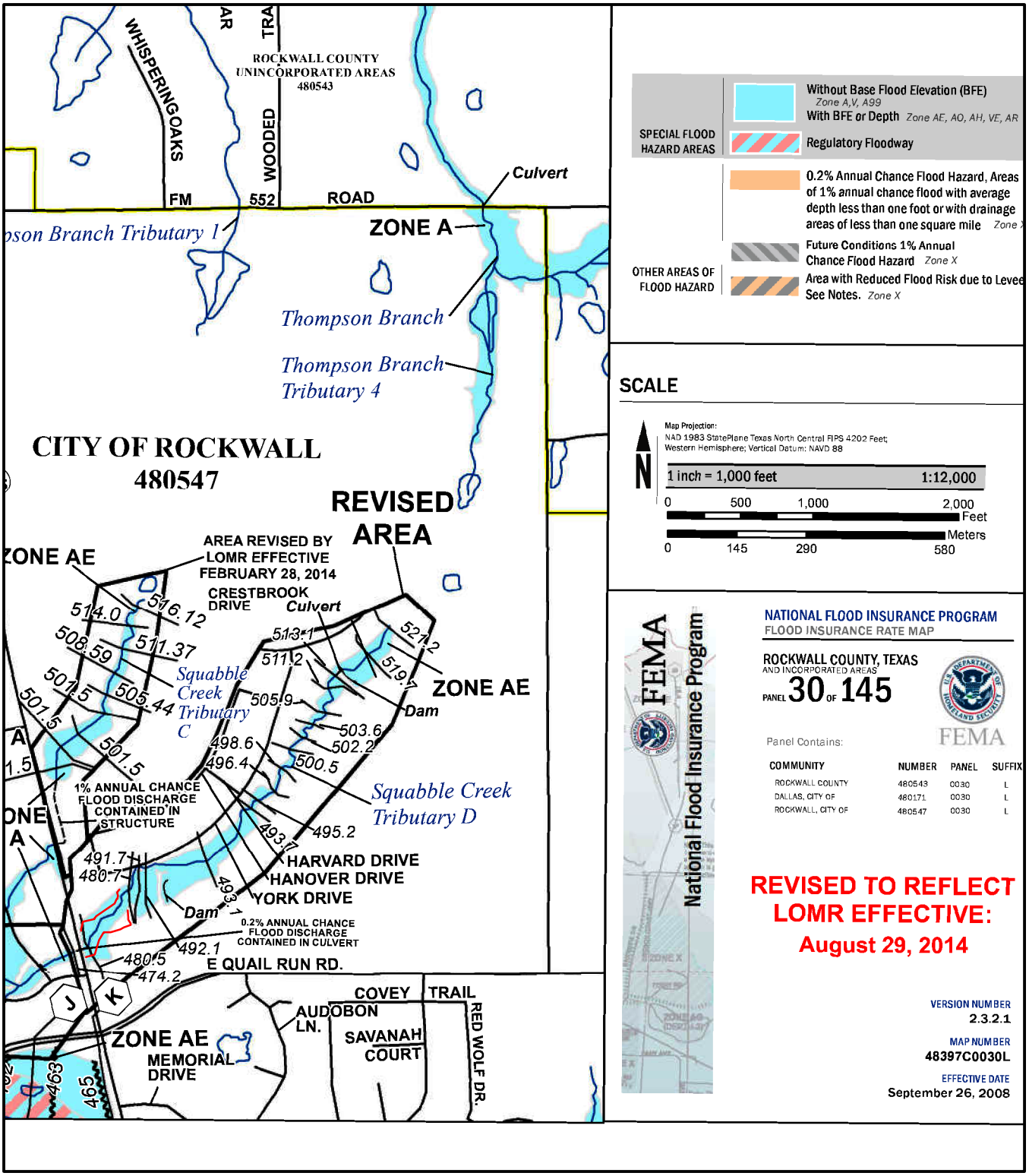
STONE CREEK RETAIL

BANNISTER ENGINEERING

1 in = 1,000 feet

0 250 500 1,000 Feet

EFFECTIVE FIRM **EXHIBIT 2**



Legend

100-YR Revised FP

STONE CREEK RETAIL

BANNISTER ENGINEERING

N

1 in = 1,000 feet

0 250 500 1,000 Feet

ANNOTATED FIRM **EXHIBIT 3**

HEC-RAS Plan: Post-Project River: RIVER-1 Reach: Reach-1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	4830	10 Year	282.80	519.35	520.87	520.87	521.29	0.025442	5.22	54.13	65.25	1.01
Reach-1	4830	50 Year	380.30	519.35	521.06	521.06	521.56	0.024427	5.65	67.39	72.18	1.02
Reach-1	4830	100 Year	428.80	519.35	521.15	521.15	521.68	0.023297	5.84	73.74	75.26	1.01
Reach-1	4830	500 Year	532.40	519.35	521.32	521.32	521.92	0.021548	6.21	87.15	81.38	0.99
Reach-1	4587	10 Year	282.80	513.00	518.86		518.87	0.000044	0.69	430.47	117.28	0.06
Reach-1	4587	50 Year	380.30	513.00	519.62		519.63	0.000047	0.78	525.32	135.41	0.06
Reach-1	4587	100 Year	428.80	513.00	519.73		519.74	0.000055	0.86	540.77	138.23	0.06
Reach-1	4587	500 Year	532.40	513.00	519.89		519.91	0.000076	1.03	563.88	142.35	0.08
Reach-1	4437	10 Year	221.00	513.00	518.87	513.47	518.87	0.000005	0.24	926.41	201.01	0.02
Reach-1	4437	50 Year	335.20	513.00	519.62	513.61	519.62	0.000008	0.31	1083.55	217.60	0.02
Reach-1	4437	100 Year	390.40	513.00	519.73	513.68	519.73	0.000010	0.35	1108.31	220.27	0.03
Reach-1	4437	500 Year	493.30	513.00	519.90	513.80	519.90	0.000014	0.43	1145.06	224.17	0.03
Reach-1	4338		Culvert									
Reach-1	4291	10 Year	272.80	510.40	512.89	512.89	513.25	0.028885	5.18	66.91	100.17	0.83
Reach-1	4291	50 Year	409.00	510.40	513.15	513.15	513.54	0.028737	5.59	95.01	113.44	0.84
Reach-1	4291	100 Year	479.10	510.40	513.25	513.25	513.66	0.029747	5.86	105.98	116.21	0.87
Reach-1	4291	500 Year	623.10	510.40	513.41	513.41	513.90	0.032533	6.42	124.98	120.85	0.92
Reach-1	4188	10 Year	272.80	508.32	510.93	510.68	511.05	0.017514	3.45	106.19	127.12	0.47
Reach-1	4188	50 Year	409.00	508.32	511.15	510.83	511.31	0.019117	3.91	134.76	130.67	0.50
Reach-1	4188	100 Year	479.10	508.32	511.24	510.92	511.42	0.020174	4.15	146.88	132.32	0.52
Reach-1	4188	500 Year	623.10	508.32	511.41	511.06	511.63	0.021960	4.57	169.63	135.38	0.55
Reach-1	3967	10 Year	272.80	501.10	505.24	505.24	505.74	0.036683	6.03	55.71	58.76	0.68
Reach-1	3967	50 Year	409.00	501.10	505.69	505.59	506.16	0.031380	6.25	85.16	73.06	0.65
Reach-1	3967	100 Year	479.10	501.10	505.89	505.74	506.34	0.028808	6.26	100.58	79.53	0.63
Reach-1	3967	500 Year	623.10	501.10	506.23		506.67	0.025430	6.31	128.62	85.54	0.60
Reach-1	3831	10 Year	272.80	498.10	502.86		503.01	0.011138	3.28	88.38	45.66	0.38
Reach-1	3831	50 Year	409.00	498.10	503.37		503.57	0.012865	3.81	114.80	55.84	0.41
Reach-1	3831	100 Year	479.10	498.10	503.58		503.81	0.013304	4.07	126.49	58.50	0.43
Reach-1	3831	500 Year	623.10	498.10	503.96		504.24	0.013766	4.51	150.16	63.54	0.44
Reach-1	3669	10 Year	272.80	496.18	501.34		501.49	0.009474	3.50	97.14	66.90	0.36

HEC-RAS Plan: Post-Project River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	3669	50 Year	409.00	496.18	501.93		502.08	0.008351	3.54	138.10	71.48	0.34
Reach-1	3669	100 Year	479.10	496.18	502.19		502.34	0.007954	3.61	156.49	74.02	0.34
Reach-1	3669	500 Year	623.10	496.18	502.64		502.81	0.007470	3.79	191.09	78.93	0.34
Reach-1	3525	10 Year	272.80	495.50	499.43		499.78	0.021679	4.75	58.19	30.05	0.56
Reach-1	3525	50 Year	409.00	495.50	500.17		500.57	0.019240	5.14	84.12	40.85	0.54
Reach-1	3525	100 Year	479.10	495.50	500.48		500.89	0.018499	5.30	97.52	46.09	0.54
Reach-1	3525	500 Year	623.10	495.50	501.03		501.46	0.017060	5.51	125.54	55.36	0.53
Reach-1	3310	10 Year	272.80	492.48	497.61		497.71	0.005232	2.53	107.87	42.71	0.28
Reach-1	3310	50 Year	409.00	492.48	498.32		498.46	0.005731	2.91	140.53	49.72	0.30
Reach-1	3310	100 Year	479.10	492.48	498.62		498.77	0.005955	3.09	155.64	53.10	0.31
Reach-1	3310	500 Year	623.10	492.48	499.13		499.31	0.006414	3.42	184.32	59.50	0.33
Reach-1	3134	10 Year	272.80	491.51	495.61		495.98	0.023895	4.98	58.90	36.49	0.58
Reach-1	3134	50 Year	409.00	491.51	496.17		496.61	0.024250	5.57	81.76	45.51	0.60
Reach-1	3134	100 Year	479.10	491.51	496.42		496.88	0.024163	5.79	93.28	49.58	0.60
Reach-1	3134	500 Year	623.10	491.51	496.87		497.37	0.023271	6.08	117.44	57.20	0.60
Reach-1	2997	10 Year	303.70	491.25	494.56		494.64	0.004711	2.37	138.05	74.88	0.27
Reach-1	2997	50 Year	452.40	491.25	495.04		495.14	0.005251	2.81	174.98	81.53	0.29
Reach-1	2997	100 Year	530.10	491.25	495.24		495.37	0.005483	3.01	192.10	84.62	0.30
Reach-1	2997	500 Year	691.20	491.25	495.56		495.72	0.006290	3.44	220.04	89.43	0.33
Reach-1	2917	10 Year	303.70	491.50	493.20	493.20	493.72	0.062827	6.20	55.28	55.23	0.91
Reach-1	2917	50 Year	452.40	491.50	493.55	493.55	494.16	0.058026	6.86	75.79	63.63	0.90
Reach-1	2917	100 Year	530.10	491.50	493.70	493.70	494.36	0.056110	7.14	86.06	67.44	0.90
Reach-1	2917	500 Year	691.20	491.50	494.20		494.75	0.036216	6.67	122.54	79.52	0.75
Reach-1	2800	10 Year	303.70	490.60	492.98		493.00	0.001201	1.24	250.40	138.69	0.16
Reach-1	2800	50 Year	452.40	490.60	493.42		493.45	0.001325	1.49	312.59	144.40	0.17
Reach-1	2800	100 Year	530.10	490.60	493.65		493.69	0.001313	1.58	347.06	147.47	0.17
Reach-1	2800	500 Year	691.20	490.60	494.14		494.18	0.001236	1.72	419.93	153.76	0.17
Reach-1	2677	10 Year	303.70	490.30	492.21	492.15	492.55	0.032671	5.55	73.29	86.01	0.78
Reach-1	2677	50 Year	452.40	490.30	492.85		493.05	0.013683	4.51	135.96	110.28	0.54
Reach-1	2677	100 Year	530.10	490.30	493.15		493.33	0.009900	4.19	171.01	119.22	0.47
Reach-1	2677	500 Year	691.20	490.30	493.74		493.88	0.005963	3.74	244.98	131.60	0.37

HEC-RAS Plan: Post-Project River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	2550	10 Year	303.70	489.63	492.32		492.34	0.000270	1.16	303.29	144.05	0.13
Reach-1	2550	50 Year	452.40	489.63	492.86		492.89	0.000305	1.39	384.05	155.11	0.14
Reach-1	2550	100 Year	530.10	489.63	493.14		493.17	0.000306	1.48	429.02	161.23	0.14
Reach-1	2550	500 Year	691.20	489.63	493.72		493.75	0.000297	1.61	525.05	174.12	0.14
Reach-1	2396	10 Year	270.70	489.63	492.28		492.30	0.000248	1.05	270.77	124.71	0.12
Reach-1	2396	50 Year	416.40	489.63	492.81		492.84	0.000306	1.31	339.70	134.32	0.14
Reach-1	2396	100 Year	484.70	489.63	493.10		493.13	0.000303	1.38	382.92	227.01	0.14
Reach-1	2396	500 Year	628.80	489.63	493.68		493.71	0.000268	1.45	517.24	237.64	0.13
Reach-1	2200	10 Year	270.70	489.63	492.19		492.23	0.000539	1.49	183.10	82.84	0.17
Reach-1	2200	50 Year	416.40	489.63	492.70		492.75	0.000670	1.87	225.78	86.47	0.20
Reach-1	2200	100 Year	484.70	489.63	492.98		493.04	0.000663	1.97	250.48	88.51	0.20
Reach-1	2200	500 Year	628.80	489.63	493.56		493.63	0.000616	2.11	326.36	240.58	0.20
Reach-1	2028	10 Year	270.70	487.50	491.66		491.96	0.013208	4.35	62.34	28.40	0.52
Reach-1	2028	50 Year	416.40	487.50	491.65		492.35	0.031961	6.74	61.86	28.33	0.80
Reach-1	2028	100 Year	484.70	487.50	491.58	491.54	492.60	0.047555	8.09	59.92	28.06	0.98
Reach-1	2028	500 Year	628.80	487.50	491.96	491.96	493.18	0.049168	8.89	70.78	29.53	1.01
Reach-1	1973	10 Year	270.70	488.58	491.81		491.81	0.000014	0.30	908.58	290.49	0.03
Reach-1	1973	50 Year	416.40	488.58	491.99		491.99	0.000028	0.44	961.51	291.76	0.04
Reach-1	1973	100 Year	484.70	488.58	492.07		492.08	0.000034	0.50	986.86	292.53	0.05
Reach-1	1973	500 Year	628.80	488.58	492.21		492.22	0.000051	0.62	1027.78	293.77	0.06
Reach-1	1917	10 Year	270.70	489.00	491.58	491.58	491.78	0.026535	5.28	98.52	218.46	0.74
Reach-1	1917	50 Year	416.40	489.00	491.72	491.72	491.96	0.029801	5.93	131.47	239.74	0.80
Reach-1	1917	100 Year	484.70	489.00	491.74	491.74	492.04	0.037775	6.71	134.85	241.82	0.90
Reach-1	1917	500 Year	628.80	489.00	491.90	491.90	492.18	0.033371	6.69	177.20	287.74	0.86
Reach-1	1716	10 Year	270.70	478.80	479.89		480.01	0.021283	2.73	99.12	119.64	0.53
Reach-1	1716	50 Year	416.40	478.80	479.89		480.16	0.051125	4.22	98.62	119.47	0.82
Reach-1	1716	100 Year	484.70	478.80	480.54		480.65	0.009738	2.68	183.69	140.09	0.39
Reach-1	1716	500 Year	628.80	478.80	481.81		481.85	0.001752	1.73	383.86	173.48	0.18
Reach-1	1622	10 Year	279.70	476.05	478.09		478.26	0.017709	3.55	93.08	92.02	0.50
Reach-1	1622	50 Year	391.30	476.05	479.28		479.34	0.003122	2.17	216.48	114.51	0.23

HEC-RAS Plan: Post-Project River: RIVER-1 Reach: Reach-1 (Continued)

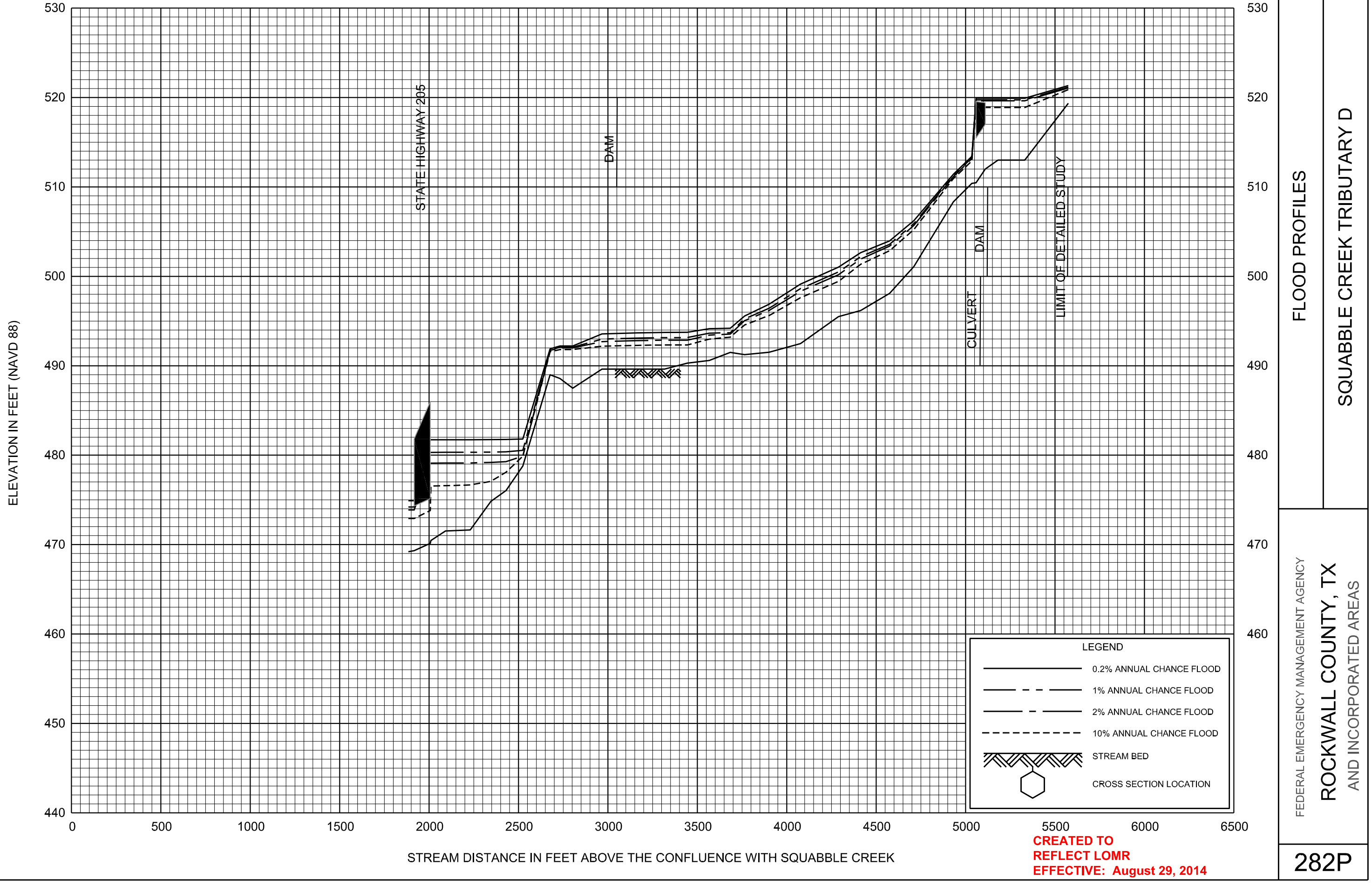
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1622	100 Year	435.70	476.05	480.38		480.41	0.000947	1.50	353.53	133.91	0.13
Reach-1	1622	500 Year	551.50	476.05	481.76		481.77	0.000428	1.23	554.14	158.60	0.10
Reach-1	1538	10 Year	279.70	474.84	477.08		477.18	0.009658	2.72	110.16	84.08	0.37
Reach-1	1538	50 Year	391.30	474.84	479.19		479.21	0.000823	1.38	332.09	125.80	0.12
Reach-1	1538	100 Year	435.70	474.84	480.35		480.36	0.000348	1.07	493.66	152.35	0.08
Reach-1	1538	500 Year	551.50	474.84	481.74		481.75	0.000198	0.95	727.64	184.29	0.07
Reach-1	1422	10 Year	279.70	471.64	476.67		476.73	0.002026	2.15	169.20	82.82	0.19
Reach-1	1422	50 Year	391.30	471.64	479.13		479.15	0.000345	1.23	443.99	135.35	0.09
Reach-1	1422	100 Year	435.70	471.64	480.32		480.33	0.000178	0.99	617.27	155.40	0.06
Reach-1	1422	500 Year	551.50	471.64	481.72		481.73	0.000119	0.91	849.01	175.48	0.05
Reach-1	1284	10 Year	279.70	471.53	476.59		476.61	0.000450	1.11	331.31	134.93	0.09
Reach-1	1284	50 Year	391.30	471.53	479.12		479.12	0.000102	0.72	760.09	204.11	0.05
Reach-1	1284	100 Year	435.70	471.53	480.32		480.32	0.000057	0.60	1022.94	234.16	0.04
Reach-1	1284	500 Year	551.50	471.53	481.72		481.72	0.000042	0.57	1373.05	265.81	0.03
Reach-1	1202	10 Year	279.70	470.45	476.55	473.53	476.57	0.000355	1.40	341.29	174.16	0.11
Reach-1	1202	50 Year	391.30	470.45	479.11	473.89	479.12	0.000060	0.74	916.62	263.73	0.05
Reach-1	1202	100 Year	435.70	470.45	480.31	474.00	480.32	0.000031	0.59	1250.20	290.97	0.03
Reach-1	1202	500 Year	551.50	470.45	481.72	474.27	481.72	0.000022	0.54	1676.91	318.31	0.03
Reach-1	1119.5		Culvert									
Reach-1	1076	10 Year	282.00	469.20	472.93	472.93	474.78	0.023479	10.91	25.85	87.56	1.00
Reach-1	1076	50 Year	395.80	469.20	473.87	473.87	476.19	0.021797	12.22	32.39	128.13	1.00
Reach-1	1076	100 Year	440.80	469.20	474.20	474.20	476.71	0.021461	12.70	34.72	140.97	1.00
Reach-1	1076	500 Year	555.70	469.20	474.90	474.90	475.09	0.002633	4.85	190.24	165.71	0.36
Reach-1	1026	10 Year	282.00	465.90	471.01		471.06	0.000698	1.99	181.74	85.91	0.17
Reach-1	1026	50 Year	395.80	465.90	471.24		471.32	0.001080	2.56	202.38	93.46	0.22
Reach-1	1026	100 Year	440.80	465.90	471.40		471.49	0.001136	2.69	217.83	98.73	0.22
Reach-1	1026	500 Year	555.70	465.90	471.51		471.65	0.001612	3.26	229.14	102.43	0.27
Reach-1	981	10 Year	282.00	465.70	470.99		471.03	0.000553	1.85	200.66	97.08	0.16
Reach-1	981	50 Year	395.80	465.70	471.20		471.28	0.000872	2.40	222.73	105.91	0.20
Reach-1	981	100 Year	440.80	465.70	471.36		471.44	0.000921	2.52	240.09	112.38	0.20

HEC-RAS Plan: Post-Project River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	981	500 Year	555.70	465.70	471.46		471.58	0.001331	3.07	251.04	116.27	0.25
Reach-1	918	10 Year	282.00	465.30	470.98		471.00	0.000248	1.24	310.87	138.11	0.10
Reach-1	918	50 Year	395.80	465.30	471.20		471.23	0.000390	1.61	341.55	145.46	0.13
Reach-1	918	100 Year	440.80	465.30	471.36		471.39	0.000411	1.69	365.21	150.88	0.14
Reach-1	918	500 Year	555.70	465.30	471.45		471.50	0.000595	2.06	379.59	154.08	0.17
Reach-1	833	10 Year	282.00	464.10	470.97	468.82	470.98	0.000154	1.01	445.86	201.91	0.07
Reach-1	833	50 Year	395.80	464.10	471.18	469.99	471.19	0.000276	1.38	489.21	211.73	0.09
Reach-1	833	100 Year	440.80	464.10	471.34	470.27	471.35	0.000286	1.43	523.46	217.95	0.09
Reach-1	833	500 Year	555.70	464.10	471.43	470.27	471.45	0.000414	1.73	542.53	221.34	0.11
Reach-1	817.5		Culvert									
Reach-1	802	10 Year	282.00	463.92	467.34	466.81	467.44	0.005690	3.52	134.62	107.33	0.34
Reach-1	802	50 Year	395.80	463.92	467.74	466.81	467.85	0.005549	3.76	182.16	128.59	0.34
Reach-1	802	100 Year	440.80	463.92	467.88	466.82	467.99	0.005497	3.83	200.36	135.85	0.35
Reach-1	802	500 Year	555.70	463.92	468.18	467.06	468.29	0.005376	3.99	243.25	146.09	0.35
Reach-1	726	10 Year	282.00	463.60	466.81		466.93	0.008483	2.84	107.79	76.39	0.34
Reach-1	726	50 Year	395.80	463.60	467.17		467.32	0.008976	3.24	138.43	91.08	0.36
Reach-1	726	100 Year	440.80	463.60	467.30		467.46	0.009085	3.37	150.37	96.20	0.37
Reach-1	726	500 Year	555.70	463.60	467.56		467.75	0.009732	3.71	176.62	106.60	0.38
Reach-1	635	10 Year	282.00	462.00	464.69	464.69	465.28	0.055775	6.34	49.72	48.27	0.84
Reach-1	635	50 Year	395.80	462.00	465.06	465.06	465.67	0.048502	6.71	69.95	61.60	0.81
Reach-1	635	100 Year	440.80	462.00	465.18	465.18	465.81	0.047404	6.87	77.23	65.74	0.81
Reach-1	635	500 Year	555.70	462.00	465.48	465.45	466.10	0.041128	6.97	99.15	76.87	0.77
Reach-1	619	10 Year	282.00	460.00	464.25		464.55	0.018752	4.45	64.29	35.08	0.50
Reach-1	619	50 Year	395.80	460.00	464.66		465.07	0.020718	5.19	82.06	50.78	0.54
Reach-1	619	100 Year	440.80	460.00	464.80		465.24	0.021169	5.42	89.57	56.11	0.55
Reach-1	619	500 Year	555.70	460.00	465.11		465.61	0.022059	5.90	108.69	67.81	0.57
Reach-1	495	10 Year	282.00	458.30	462.20		462.37	0.016112	3.28	86.59	60.43	0.45
Reach-1	495	50 Year	395.80	458.30	462.56		462.77	0.015970	3.72	111.07	76.60	0.46
Reach-1	495	100 Year	440.80	458.30	462.67		462.90	0.016008	3.87	120.53	82.00	0.47
Reach-1	495	500 Year	555.70	458.30	462.94		463.20	0.016084	4.20	144.27	94.20	0.48

HEC-RAS Plan: Post-Project River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	393	10 Year	282.00	456.95	460.91	459.87	461.07	0.010542	3.50	103.01	95.31	0.39
Reach-1	393	50 Year	395.80	456.95	461.17	460.61	461.37	0.012367	4.04	129.30	106.93	0.42
Reach-1	393	100 Year	440.80	456.95	461.26	460.74	461.48	0.012933	4.22	139.10	110.95	0.44
Reach-1	393	500 Year	555.70	456.95	461.45	460.94	461.71	0.014548	4.67	160.99	119.45	0.47



CREATED TO REFLECT LOMR EFFECTIVE: August 29, 2014

FLOOD PROFILES

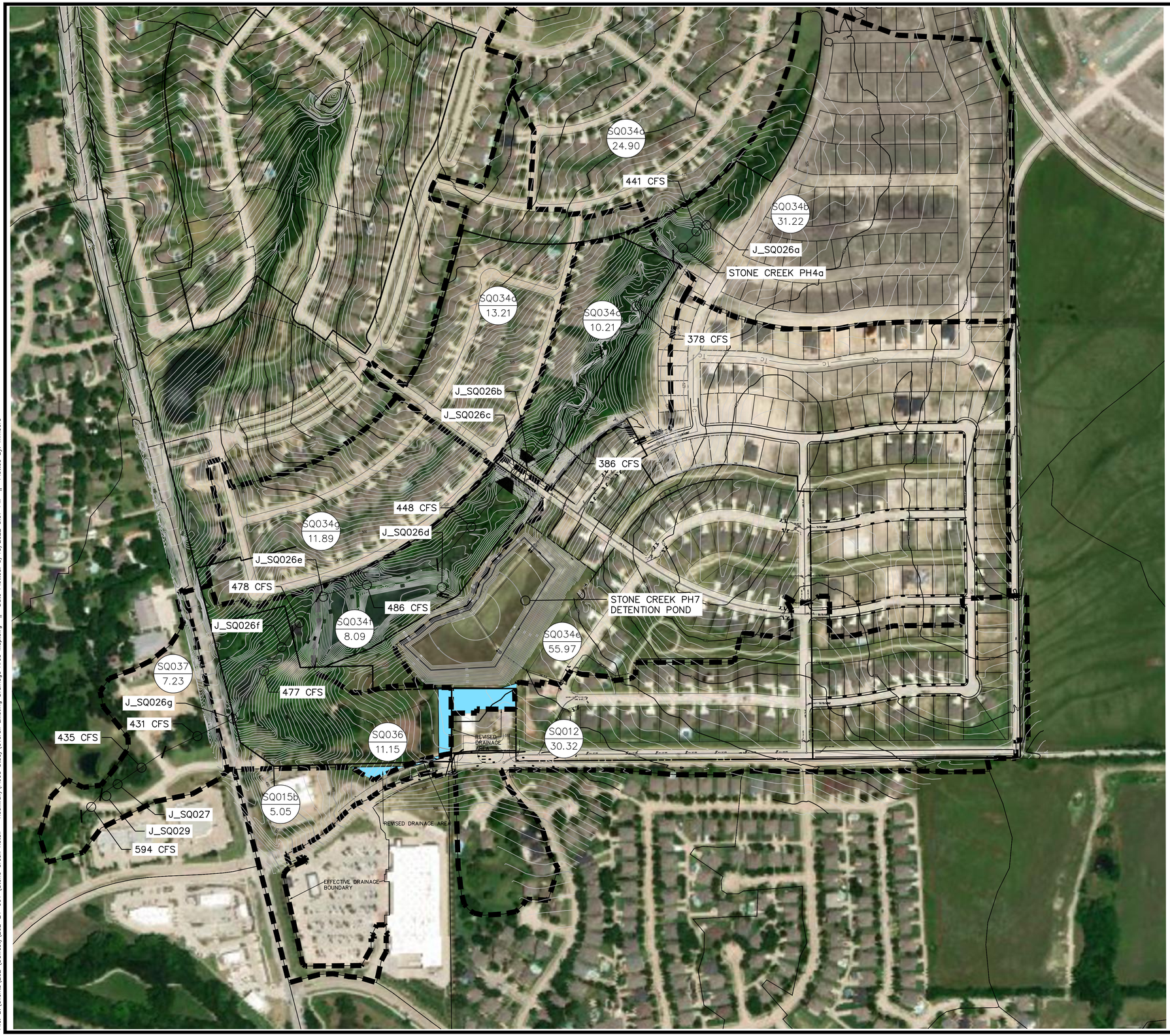
SQUABBLE CREEK TRIBUTARY D

FEDERAL EMERGENCY MANAGEMENT AGENCY

ROCKWALL COUNTY, TX

AND INCORPORATED AREAS

282P



N

GRAPHIC SCALE

200 0 100 200 400

(IN FEET)
1 inch = 200 ft.

LEGEND

118	EXISTING CONTOUR
Tc	TIME OF CONCENTRATION
Tc	FLOW TYPE CHANGE
	DISCHARGE SEGMENT
	AREA DIVIDE
AREA DA-X ACRES 1.00	DRAINAGE AREA LABEL

MDS REVISED SUBBASINS

1. SQ012
2. SQ015b
3. SQ034e
4. SQ034f
5. SQ036 (SITE)

BENCHMARKS

BM#1:
CITY OF ROCKWALL MONUMENT 14

NAVD88
ELEV.=497.13

BANNISTER ENGINEERING
240 North Mitchell Road | Mansfield, TX 76063| 817.842.2094| 817.842.2095 fax
REGISTRATION # F-10599 (TEXAS)

STONE CREEK RETAIL

ROCKWALL, TEXAS

OVERALL EXISTING DRAINAGE AREA MAP

No.	Date	Revision Description

PROJECT NO.: 262-21-001

STATE OF TEXAS
MICHAEL J. MOORE
128498
LICENSED
PROFESSIONAL ENGINEER

3/15/2022

SHEET NUMBER

6

File: B:\Clients\262 (DuWest)\262-21-001 (Stone Creek Retail - Rockwall)\Flood Study\Overall Existing Drainage Area Map.dwg | Date Plotted: 3/15/2022 3:07 PM | Plotted By: mmoore

SCS TIME OF CONCENTRATION CALCULATIONS

EXISTING SCS Tc CALCULATIONS FOR AREA SQ034e

TYPE	CONDITION	DIST	UP ELEV	DOWN ELEV	SLOPE	Coeff.	P_2	VELOCITY	TIME (MIN)
SHEET	GRASS	28	541.3	540.8	1.8%	0.24	4.09	0.10	4.8
SHALLOW	GRASS	126	540.8	539.4	1.1%	16.13		1.70	1.2
SHALLOW	PAVE	480	538.9	535.19	0.8%	20.33		1.79	4.5
PIPE	PAVE	1913						10.4	3.1
								TOTAL	13.5

SCS CALCULATION REFERENCES

Sheet Flow

Sheet flow can be calculated using the following formula:

$$T_t = \frac{0.42\,(nL)^{0.8}}{60\,(P_2)^{0.5}(S)^{0.4}} = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5}(S)^{0.4}} \qquad (1.10)$$

where:

T_t = travel time (hr)
n = Manning roughness coefficient (see Table 1.10)
L = flow length (ft),
P_2 = 2-year, 24-hour rainfall
S = land slope (ft/ft)

Table 1.10 Roughness Coefficients (Manning's n) for Sheet Flow[1]

Surface Description	n
Smooth surfaces	
(concrete, asphalt, gravel or bare soil)	0.011
Fallow	
(no residue)	0.05
Cultivated soils:	
Residue cover < 20%	0.06
Residue cover > 20%	0.17
Grass:	
Short grass prairie	0.15
Dense grasses[2]	0.24
Bermuda grass	0.41
Range	
(natural)	0.13
Woods[3]	
Light underbrush	0.40
Dense underbrush	0.80

[1] The n values are a composite of information by Engman (1986).
[2] Includes species such as bluestem grass, buffalo grass, grama grass, and native grass mixtures.
[3] When selecting n, consider cover to a height of about 0.1 ft. This is the only part of the plant cover that will obstruct sheet flow.
Source: SCS, TR-55, Second Edition, June 1986.

NOTE: REFERENCED SHEET FLOW EQUATION CALCULATES Tc IN HOURS. THE EQUATION USED WAS MODIFIED TO CALCULATE Tc IN MINUTES

VELOCITY SHALLOW FLOW EQUATION

Unpaved $V = 16.13(S)^{0.5}$
Paved $V = 20.33(S)^{0.5}$

where:
V = average velocity (ft/s)
S = slope of hydraulic grade line (watercourse slope, ft/ft)

PHASE 7 STONE CREEK DETENTION POND

POND VOLUME CALCULATIONS

ELEVATION	AREA	VOLUME	TOTAL VOLUME
(ft)	(sf)	(cu.ft.)	(cu.ft.)
493	0	0	0
494	19,559	9,780	9,780
494.5	44,932	16,123	25,902
495	71,048	28,995	54,897
495.5	90,653	40,425	95,323
496	104,477	48,783	144,105
496.5	116,529	55,252	199,357
497	119,958	59,122	258,478
498	128,248	124,103	382,581
499	136,734	132,491	515,072
500	145,415	141,075	656,147
501	154,292	149,854	806,000
502	163,365	158,829	964,829

ROUTING TABLES

1622-1917 R_SQ015e	
Volume (ac-ft)	Discharge (cfs)
0.16	50
0.27	100
0.35	150
0.42	200
0.49	250
0.54	300
0.58	350
0.66	400
1.13	450
2.02	500
2.63	600
3.34	650
3.60	700

1202-1622 R_SQ015f	
Volume (ac-ft)	Discharge (cfs)
0.24	50
0.45	100
0.75	150
1.17	200
1.70	250
2.42	300
3.72	350
5.44	400
7.74	450
10.71	500
12.60	600
14.86	650

BY:
DATE:
CK'D:
DATE:
LOSS RATE METHOD
STREAM ROUTING

COMPUTATION SUMMARY SHEET
HYDROLOGY BY UNIT HYDROGRAPH METHOD

SHEET 1 OF 1
SUBWATERSHED
MAJOR WATERSHED
JOB/FILE NO.:

ANALYSIS POINT	SUBWATERSHED AREA (SQ.MI.)	WATERSHED AREA (SQ.MI.)	UNIT HYDROGRAPH COEFFICIENTS: SCS METHOD C_N	Lag (MIN)	SNYDER'S METHOD C_P	T_P (HR)	PEAK DISCHARGES (CFS): Q_5	Q_{10}	Q_{25}	Q_{100}	COMMENTS
MDS											
SQ012	0.04874	0.04874	94.40	18.7						169.0	
SQ015b	0.00804	0.00804	96.88	10						35.2	
SQ034a	0.03900	0.03900	95.64	4.28						203.9	
SQ034b	0.04860	0.04860	95.35	6.19						236.7	
SQ034c	0.01730	0.01730	88.93	5.43						83.9	
SQ034d	0.02050	0.02050	96.35	5.38						103.9	
SQ034e	0.08520	0.08520	95.46	9.10						380.9	
SQ034f	0.01480	0.01480	87.10	6.47						67.8	
SQ034g	0.01840	0.01840	94.81	5.49						92.4	
SQ036	0.01670	0.01670	92.71	4.12						86.4	Site
Stone Creek Phase 7		0.08520								130.3	
R_SQ015e		0.22540								457.0	
R_SQ015f		0.24380								421.6	
J_SQ008		0.14576								509.7	
J_SQ009		0.16226								531.5	
J_SQ010		4.88640								1125.5	
J_SQ021		5.44221								2377.7	
J_SQ023		5.45421								2429.2	
J_SQ024		5.48127								2425.0	
J_SQ025		5.56291								2680.3	
J_SQ026a		0.08760								440.7	
J_SQ026b		0.10490								385.8	
J_SQ026c		0.12540								447.8	
J_SQ026d		0.21060								475.0	
J_SQ026e		0.22540								474.1	
J_SQ026f		0.24380								472.4	
J_SQ026g		0.26050								431.5	
J_SQ027		0.27250								436.5	
J_SQ029		0.42610								595.5	
J_SQ030		5.98901								3206.7	
J_SQ031		6.08258								2776.8	
J_SQ034		6.26310								3032.3	
J_SQ035		6.28927								2999.3	
J_SQ037		6.40495								3006.3	
J_SQ039		6.50460								3080.6	
J_SQ040		6.76805								3188.2	
J_SQ041		7.03088								3529.5	
PRE-PROJECT											
SQ012	0.04738	0.04738	94.4	18.7						164.3	
SQ015b	0.00789	0.00789	96.8	10						34.5	
SQ034a	0.03900	0.03900	95.64	4.28						203.9	
SQ034b	0.04860	0.04860	95.35	6.19						236.7	
SQ034c	0.01730	0.01730	88.93	5.43						83.9	
SQ034d	0.02050	0.02050	96.35	5.38						103.9	
SQ034e	0.08745	0.08745	94.2	9.10						403.8	
SQ034f	0.01264	0.01264	79.1	6.47						52.9	
SQ034g	0.01840	0.01840	94.81	5.49						92.4	
SQ036	0.01742	0.01742	86.6	7.4						77.8	Proposed site.
Stone Creek Phase 7		0.08745								136.3	
R_SQ015e		0.22550								460.7	
R_SQ015f		0.24390								419.5	
J_SQ008		0.14440								508.9	
J_SQ009		0.16090								530.7	
J_SQ010		4.88504								1125.2	
J_SQ021		5.44070								2376.1	
J_SQ023		5.45270								2427.6	
J_SQ024		5.47976								2423.0	
J_SQ025		5.56140								2678.2	
J_SQ026a		0.08760								440.7	
J_SQ026b		0.10490								385.8	
J_SQ026c		0.12540								447.8	
J_SQ026d		0.21285								486.0	
J_SQ026e		0.22550								477.9	
J_SQ026f		0.24390								477.1	
J_SQ026g		0.26131								430.7	
J_SQ027		0.27331								435.4	
J_SQ029		0.42691								594.4	
J_SQ030		5.98831								3206.1	
J_SQ031		6.08188								2770.9	
J_SQ034		6.26240								3023.6	
J_SQ035		6.28857								2992.0	
J_SQ037		6.40425								2997.4	
J_SQ039		6.50390								3071.6	
J_SQ040		6.76735								3185.4	
J_SQ041		7.03018								3525.4	

MDS/PRE-PROJECT 100-YEAR DISCHARGE SUMMARY

MDS		PRE-PROJECT		
DESIGN POINT	DISCHARGE (cfs)	DESIGN POINT	DISCHARGE (cfs)	DIFFERENCE (cfs)
SQ012	169.0	SQ012	164.3	-4.7
SQ015b	35.2	SQ015b	34.5	-0.7
SQ034a	203.9	SQ034a	203.9	0.0
SQ034b	236.7	SQ034b	236.7	0.0
SQ034c	83.9	SQ034c	83.9	0.0
SQ034d	103.9	SQ034d	103.9	0.0
SQ034e	380.9	SQ034e	403.8	22.9
SQ034f	67.8	SQ034f	52.9	-14.9
SQ034g	92.4	SQ034g	92.4	0.0
SQ036	86.4	SQ036	77.8	-8.6
Stone Creek Phase 7	130.3	Stone Creek Phase 7	136.3	6.0
J_SQ008	509.7	J_SQ008	508.9	-0.8
J_SQ009	531.5	J_SQ009	530.7	-0.8
J_SQ010	1125.5	J_SQ010	1125.2	-0.3
J_SQ021	2377.7	J_SQ021	2376.1	-1.6
J_SQ023	2429.2	J_SQ023	2427.6	-1.6
J_SQ024	2425.0	J_SQ024	2423.0	-2.0
J_SQ025	2680.3	J_SQ025	2678.2	-2.1
J_SQ026c	447.8	J_SQ026c	447.8	0.0
J_SQ026d	475.0	J_SQ026d	486.0	11.0
J_SQ026e	474.1	J_SQ026e	477.9	3.8
J_SQ026f	472.4	J_SQ026f	477.1	4.7
J_SQ026g	431.5	J_SQ026g	430.7	-0.8
J_SQ027	436.5	J_SQ027	435.4	-1.1
J_SQ029	595.5	J_SQ029	594.4	-1.1
J_SQ030	3206.7	J_SQ030	3206.1	-0.6
J_SQ031	2776.8	J_SQ031	2770.9	-5.9
J_SQ034	3032.3	J_SQ034	3023.6	-8.7
J_SQ035	2999.3	J_SQ035	2992.0	-7.3
J_SQ037	3006.3	J_SQ037	2997.4	-8.9
J_SQ039	3080.6	J_SQ039	3071.6	-9.0
J_SQ040	3188.2	J_SQ040	3185.4	-2.8

SCS CURVE NUMBER CALCULATIONS

EXISTING CN CALCULATIONS

BASIN	LAND USE	AREA	SOIL GROUP	AREA	CN	%	CN*%
SQ036	OPEN SPACE (Good)	9.19	B	4.95	61	44.4%	27.1
			D	4.24	80	38.0%	30.4
	PAVED STREET	1.09	B	0.64	89	5.7%	5.1
			D	0.45	93	4.0%	3.7
	COMMERCIAL	0.87	B	0.28	92	2.6%	2.4
			D	0.59	95	5.3%	5.0
	TOTAL	11.15		11.15		**TOTAL**	**73.7**
SQ012	OPEN SPACE (Good)	2.28	B	1.63	61	5.4%	3.3
			D	0.65	80	2.1%	1.7
	OPEN SPACE (Fair)	1.36	B	0.00	69	0.0%	0.0
			D	1.36	84	4.5%	3.8
	PAVED STREET	10.33	B	0.31	89	1.0%	0.9
			D	10.02	93	33.0%	30.7
	COMMERCIAL	0.84	B	0.00	92	0.0%	0.0
			D	0.84	95	2.8%	2.6
	RES 1/8 ACRE	4.32	B	0.00	87	0.0%	0.0
			D	4.32	93	14.2%	13.3
	RES 1/4 ACRE	8.46	B	1.40	78	4.6%	3.6
			D	7.06	88	23.3%	20.5
	RES 1/3 ACRE	1.95	B	0.57	75	1.9%	1.4
			D	1.38	87	4.5%	4.0
	RES 1/2 ACRE	0.80	B	0.00	75	0.0%	0.0
			D	0.80	87	2.6%	2.3
	TOTAL	30.32		30.32		**TOTAL**	**88.0**
SQ034e	OPEN SPACE (Good)	6.36	B	2.91	61	5.2%	3.2
			D	3.45	80	6.2%	4.9
	OPEN SPACE (Fair)	4.98	B	0.01	69	0.0%	0.0
			D	4.97	84	8.9%	7.5
	PAVED STREET	9.85	B	1.21	89	2.2%	1.9
			D	8.64	93	15.4%	14.4
	COMMERCIAL	0.52	B	0.00	92	0.0%	0.0
			D	0.52	95	0.9%	0.9
	RES 1/8 ACRE	18.76	B	0.62	87	1.1%	1.0
			D	18.14	93	32.4%	30.1
	RES 1/4 ACRE	14.21	B	2.89	78	5.2%	4.0
			D	11.32	88	20.2%	17.8
	RES 1/3 ACRE	1.12	B	0.00	75	0.0%	0.0
			D	1.12	87	2.0%	1.7
	RES 1/2 ACRE	0.17	B	0.00	75	0.0%	0.0
			D	0.17	87	0.3%	0.3
	TOTAL	55.97		55.97		**TOTAL**	**87.7**

EXISTING CN CALCULATIONS

SQ034f	OPEN SPACE (Good)	7.98	B	7.60	61	93.9%	57.3
			D	0.38	80	4.7%	3.8
	PAVED STREET	0.07	B	0.05	89	0.6%	0.6
			D	0.02	93	0.3%	0.3
	RES 1/4 ACRE	0.04	B	0.04	78	0.5%	0.4
			D	0.00	88	0.0%	0.0
	TOTAL	8.09		8.09		**TOTAL**	**62.2**
SQ015b	OPEN SPACE (Good)	1.98	B	0.99	89	19.6%	17.5
			D	0.99	93	19.6%	18.2
	COMMERCIAL	3.07	B	0.71	92	14.1%	13.0
			D	2.35	95	46.6%	44.3
	TOTAL	5.05		5.05		**TOTAL**	**93.0**

Cover Type	Cover Description	Land Use Code	A	B	C	D	W
Cultivated land	w/o conservation treatment	1	72	81	88	91	100
	w/ conservation treatment	2	62	71	78	81	100
Pasture	poor	3	68	79	86	89	100
	good	4	39	61	74	80	100
Open Space	good	5	39	61	74	80	100
Brush	good	6	30	48	65	73	100
Forest land	thin stand, poor cover	7	45	66	77	83	100
	good cover	8	30	55	70	77	100
Open space (lawns, parks, golf courses, cemeteries)	poor (grass cover < 50%)	9	68	79	86	89	100
	fair (grass cover 50% to 75%)*	10	49	69	79	84	100
	good (grass cover > 75%)	11	39	61	74	80	100
Impervious areas	Paved; excluding R.O.W	12	98	98	98	98	100
	Paved; open ditches + R.O.W.*	13	83	89	92	93	100
	Gravel + R.O.W.	14	76	85	89	91	100
	Dirt + R.O.W.	15	72	82	87	89	100
Urban districts	Commercial and business 85%IMP*	16	89	92	94	95	100
	Industrial 72% IMP	17	81	88	91	93	100
Residential	1/8 ac or less 65%IMP*	18	80	87	91	93	100
	1/4 ac 38%IMP*	19	66	78	85	88	100
	1/3 ac 30%IMP*	20	60	75	83	87	100
	1/2 ac 25%IMP*	21	60	75	83	87	100
	1 ac 20%IMP*	22	59	74	82	86	100
	2 ac 12%IMP	23	46	65	77	82	100

*iSWM CN checked and revised to match Rockwall CN.

CN SUMMARY

BASIN	AREA	%	CN
SQ036	11.15	1.00	73.7
AMC-3			86.6
SQ012	30.32	1.00	88.0
AMC-3			94.4
SQ034e	55.97	1.00	87.7
AMC-3			94.2
SQ034f	8.09	1.00	62.2
AMC-3			79.1
SQ015b	5.05	1.00	93.0
AMC-3			96.8

BANNISTER ENGINEERING
240 North Mitchell Road | Mansfield, TX 76063| 817.842.2094| 817.842.2095 fax
REGISTRATION # F-10599 (TEXAS)

STONE CREEK RETAIL
ROCKWALL, TEXAS

OVERALL EXISTING DRAINAGE AREA CALCULATIONS

No.	Date	Revision Description

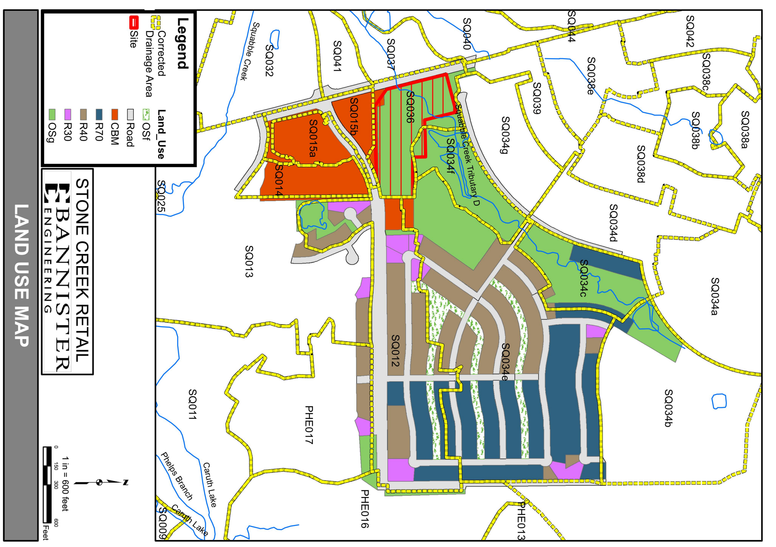
PROJECT NO.: 262-21-001

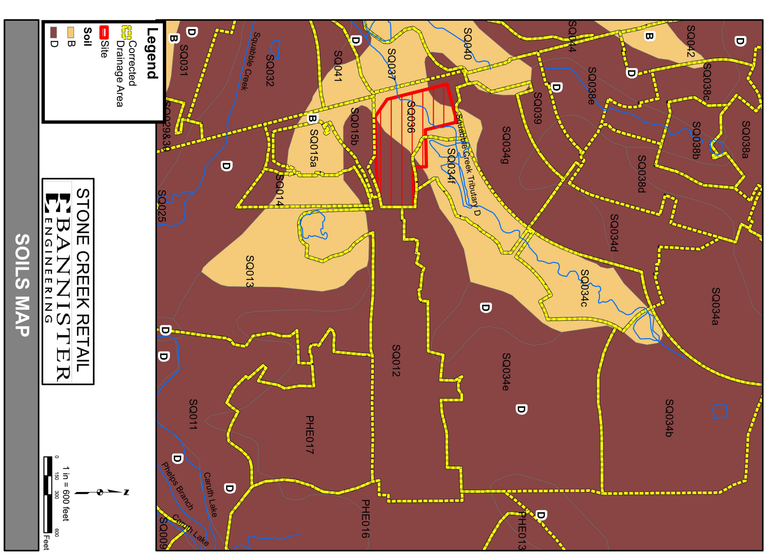
STATE OF TEXAS
MICHAEL J. MOORE
128498
LICENSED
PROFESSIONAL ENGINEER

3/15/2022

SHEET NUMBER
7

File: B:\Clients\262 (DuWest)\262-21-001 (Stone Creek Retail - Rockwall)\Flood Study\Overall Existing Drainage Area Map.dwg || Date Plotted: 3/15/2022 3:13 PM || Plotted By: mmoore





No.	Date	Revision Description

PROJECT NO.: 262-21-001

STONE CREEK RETAIL

ROCKWALL, TEXAS

EXISTING LAND USE & SOILS MAP

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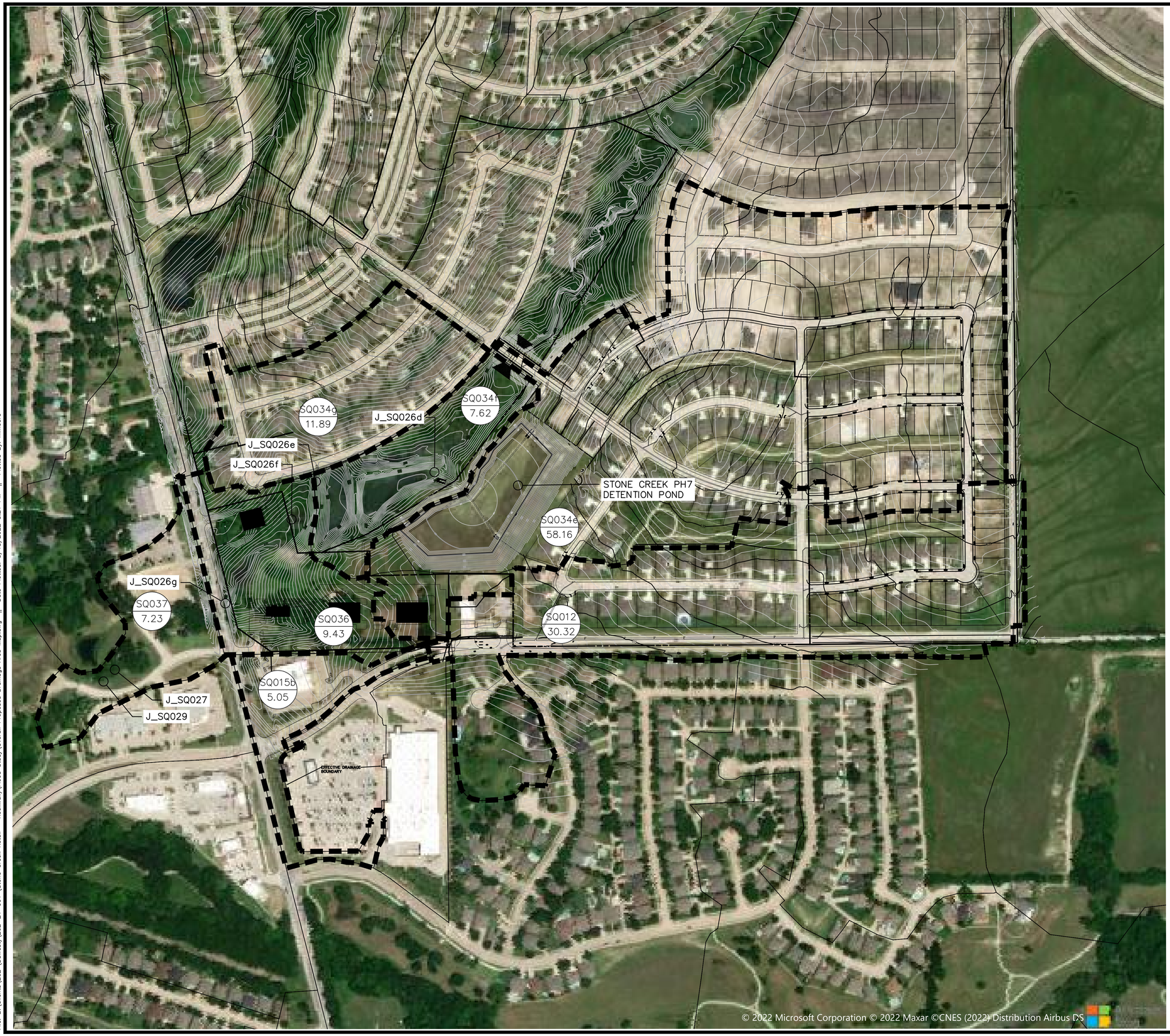
REGISTRATION # F-10599 (TEXAS)

MICHAEL J. MOORE
128498
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

3/15/2022

SHEET NUMBER 8



N

GRAPHIC SCALE

200 0 100 200 400

(IN FEET)
1 inch = 200 ft.

LEGEND

- 118 — EXISTING CONTOUR
- Tc — TIME OF CONCENTRATION
- Tc — FLOW TYPE CHANGE
- AREA DIVIDE
- AREA / ACRES: DA-X / 1.00 — DRAINAGE AREA LABEL

POST-PROJECT REVISED SUBBASINS

1. SQ034e
2. SQ034f
3. SQ036 (SITE)

BENCHMARKS

BM#1:
CITY OF ROCKWALL MONUMENT 14

NAVD88
ELEV.=497.13

BANNISTER ENGINEERING
240 North Mitchell Road | Mansfield, TX 76063| 817.842.2094| 817.842.2095 fax
REGISTRATION # F-10399 (TEXAS)

STONE CREEK RETAIL
ROCKWALL, TEXAS

OVERALL PROPOSED DRAINAGE AREA MAP

No.	Date	Revision Description

PROJECT NO.: 262-21-001

STATE OF TEXAS
MICHAEL J. MOORE
128498
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PROFESSIONAL ENGINEER

3/15/2022

SHEET NUMBER
9

File: B:\Clients\262 (DuWest)\262-21-001 (Stone Creek Retail - Rockwall)\Flood Study\Overall Proposed Drainage Area Map.dwg || Date Plotted: 3/15/2022 3:21 PM || Plotted By: mmoore

SCS TIME OF CONCENTRATION CALCULATIONS

LAG 8.1

EXISTING SCS Tc CALCULATIONS FOR AREA SQ034f

TYPE	CONDITION	DIST	UP ELEV	DOWN ELEV	SLOPE	Coeff.	P_2	VELOCITY	TIME (MIN)
SHEET	GRASS	79	510	492	22.8%	0.24	4.09	0.33	4.0
SHALLOW	GRASS	116	492	490.5	1.3%	16.13		1.83	1.1
CHANNEL	GRASS	871	SC PH7 - from HEC-RAS					2.5	5.8
								TOTAL	10.8

SCS CALCULATION REFERENCES

Sheet Flow

Sheet flow can be calculated using the following formula:

$$T_t = \frac{0.42\,(nL)^{0.8}}{60\,(P_2)^{0.5}(S)^{0.4}} = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5}(S)^{0.4}} \qquad (1.10)$$

where:

T_t = travel time (hr)
n = Manning roughness coefficient (see Table 1.10)
L = flow length (ft),
P_2 = 2-year, 24-hour rainfall
S = land slope (ft/ft)

Table 1.10 Roughness Coefficients (Manning's n) for Sheet Flow[1]

Surface Description	n
Smooth surfaces	
(concrete, asphalt, gravel or bare soil)	0.011
Fallow	
(no residue)	0.05
Cultivated soils:	
Residue cover < 20%	0.06
Residue cover > 20%	0.17
Grass:	
Short grass prairie	0.15
Dense grasses[2]	0.24
Bermuda grass	0.41
Range	
(natural)	0.13
Woods[3]	
Light underbrush	0.40
Dense underbrush	0.80

[1] The n values are a composite of information by Engman (1986).
[2] Includes species such as bluestem grass, buffalo grass, grama grass, and native grass mixtures.
[3] When selecting n, consider cover to a height of about 0.1 ft. This is the only part of the plant cover that will obstruct sheet flow.
Source: SCS, TR-55, Second Edition, June 1986.

NOTE: REFERENCED SHEET FLOW EQUATION CALCULATES Tc IN HOURS. THE EQUATION USED WAS MODIFIED TO CALCULATE Tc IN MINUTES

VELOCITY SHALLOW FLOW EQUATION

Unpaved $V = 16.13(S)^{0.5}$
Paved $V = 20.33(S)^{0.5}$

where:
V = average velocity (ft/s)
S = slope of hydraulic grade line (watercourse slope, ft/ft)

PHASE 7 STONE CREEK DETENTION POND

POND VOLUME CALCULATIONS

ELEVATION	AREA	VOLUME	TOTAL VOLUME
(ft)	(sf)	(cu.ft.)	(cu.ft.)
493	0	0	0
494	19,559	9,780	9,780
494.5	44,932	16,123	25,902
495	71,048	28,995	54,897
495.5	90,653	40,425	95,323
496	107,413	49,517	144,839
496.5	124,966	58,095	202,934
497	133,300	64,567	267,500
497.5	141,163	68,616	336,116
498	145,016	71,545	407,661
499	154,380	149,698	557,359
500	163,913	159,147	716,505
501	173,615	168,764	885,269
502	183,722	178,669	1,063,938

PROPOSED DETENTION POND SUMMARY

Storm Event	Discharge In	Top of Berm	Max. Storage	Discharge Out	Peak Elevation	Utilized Storage	Freeboard
	(cfs)		(ac.ft.)	(cfs)		(ac.ft.)	(ft)
100-YEAR	419.8	502	24.42	127.9	499.66	15.21	2.34
25-YEAR	327.8	502	24.42	70.2	498.83	12.21	3.17
10-YEAR	278.9	502	24.42	64.8	498.15	9.87	3.85
5-YEAR	230.3	502	24.42	58.8	497.47	7.62	4.53

WEIR EQUATION:
$Q = CLH^{1.5}$
C=WEIR COEFFICIENT=3.32
L=WEIR LENGTH
H=HEAD ABOVE WEIR

RISER EMERGENCY OVERFLOW
L=46'
H=2'
DEPTH=1.96'
Q CAPACITY=432.0 CFS
Q100=419.8 CFS

ROUTING TABLES

1622-1917 R_SQ015e	
Volume (ac-ft)	Discharge (cfs)
0.16	50
0.26	100
0.36	150
0.43	200
0.48	250
0.54	300
0.58	350
0.63	400
1.06	450
1.88	500
2.47	600
3.19	650
3.45	700

1202-1622 R_SQ015f	
Volume (ac-ft)	Discharge (cfs)
0.27	50
0.52	100
0.83	150
1.27	200
1.90	250
2.73	300
4.15	350
5.91	400
8.12	450
10.79	500
12.64	600
15.08	650

SCS CURVE NUMBER CALCULATIONS

PROPOSED CN CALCULATIONS

BASIN	LAND USE	AREA	SOIL GROUP	AREA	CN	%	CN*%
SQ036	OPEN SPACE (Good)	2.91	B	2.55	61	27.1%	16.5
			D	0.36	80	3.8%	3.0
	PAVED STREET	1.09	B	0.64	89	6.8%	6.0
			D	0.45	93	4.8%	4.4
	COMMERCIAL	5.43	B	2.68	92	28.4%	26.1
			D	2.75	95	29.2%	27.7
	TOTAL	9.43		9.43		**TOTAL**	**83.9**
SQ034e	OPEN SPACE (Good)	6.91	B	3.07	61	5.3%	3.2
			D	3.85	80	6.6%	5.3
	OPEN SPACE (Fair)	4.98	B	0.01	69	0.0%	0.0
			D	4.97	84	8.6%	7.2
	PAVED STREET	9.85	B	1.21	89	2.1%	1.9
			D	8.64	93	14.9%	13.8
	COMMERCIAL	2.16	B	0.00	92	0.0%	0.0
			D	2.16	95	3.7%	3.5
	RES 1/8 ACRE	18.76	B	0.62	87	1.1%	0.9
			D	18.14	93	31.2%	29.0
	RES 1/4 ACRE	14.21	B	2.89	78	5.0%	3.9
			D	11.32	88	19.5%	17.1
	RES 1/3 ACRE	1.12	B	0.00	75	0.0%	0.0
			D	1.12	87	1.9%	1.7
	RES 1/2 ACRE	0.17	B	0.00	75	0.0%	0.0
			D	0.17	87	0.3%	0.2
	TOTAL	58.16		58.16		**TOTAL**	**87.8**
SQ034f	OPEN SPACE (Good)	7.50	B	7.44	61	97.7%	59.6
			D	0.06	80	0.8%	0.6
	PAVED STREET	0.07	B	0.05	89	0.7%	0.6
			D	0.02	93	0.3%	0.3
	RES 1/4 ACRE	0.04	B	0.04	78	0.5%	0.4
			D	0.00	88	0.0%	0.0
	TOTAL	7.62		7.62		**TOTAL**	**61.5**

CN SUMMARY

BASIN	AREA	%	CN
SQ036	9.43	1.00	83.9
AMC-3			92.3
SQ034e	58.16	1.00	87.8
AMC-3			94.3
SQ034f	7.62	1.00	61.5
AMC-3			78.6

Cover Type	Cover Description	Land Use Code	A	B	C	D	W
Cultivated land	w/o conservation treatment	1	72	81	88	91	100
	w/ conservation treatment	2	62	71	78	81	100
Pasture	poor	3	68	79	86	89	100
	good	4	39	61	74	80	100
Open Space	good	5	39	61	74	80	100
Brush	good	6	30	48	65	73	100
Forest land	thin stand, poor cover	7	45	66	77	83	100
	good cover	8	30	55	70	77	100
Open space (lawns, parks, golf courses, cemeteries)	poor (grass cover < 50%)	9	68	79	86	89	100
	fair (grass cover 50% to 75%)*	10	49	69	79	84	100
	good (grass cover > 75%)	11	39	61	74	80	100
Impervious areas	Paved; excluding R.O.W	12	98	98	98	98	100
	Paved; open ditches + R.O.W.*	13	83	89	92	93	100
	Gravel + R.O.W.	14	76	85	89	91	100
	Dirt + R.O.W.	15	72	82	87	89	100
Urban districts	Commercial and business 85%IMP*	16	89	92	94	95	100
	Industrial 72% IMP	17	81	88	91	93	100
Residential	1/8 ac or less 65%IMP*	18	80	87	91	93	100
	1/4 ac 38%IMP*	19	66	78	85	88	100
	1/3 ac 30%IMP*	20	60	75	83	87	100
	1/2 ac 25%IMP*	21	60	75	83	87	100
	1 ac 20%IMP*	22	59	74	82	86	100
	2 ac 12%IMP	23	46	65	77	82	100

*iSWM CN checked and revised to match Rockwall CN.

BY:
DATE:
CK'D:
DATE:

LOSS RATE METHOD
STREAM ROUTING

COMPUTATION SUMMARY SHEET
HYDROLOGY BY UNIT HYDROGRAPH METHOD

SHEET 1 OF 1
SUBWATERSHED
MAJOR WATERSHED
JOB/FILE NO.:

ANALYSIS POINT	SUBWATERSHED AREA (SQ.MI.)	WATERSHED AREA (SQ.MI.)	UNIT HYDROGRAPH COEFFICIENTS: SCS METHOD C_N	SCS METHOD Lag (MIN)	SNYDER'S METHOD C_P	SNYDER'S METHOD T_P (HR)	PEAK DISCHARGES (CFS): Q_5	Q_{10}	Q_{25}	Q_{100}	COMMENTS
PRE-PROJECT											
SQ034e	0.08745	0.08745	94.24	9.10			221.3	268.2	315.2	403.8	
SQ034f	0.01264	0.01264	79.13	6.47			24.5	31.7	39	52.9	
SQ036	0.01742	0.01742	86.57	7.69			39.6	49.4	59.3	77.8	Site
Stone Creek Phase 7		0.08745					58.7	65.1	70.8	136.3	
R_SQ015e		0.22550					204.4	259.9	320.9	460.7	
R_SQ015f		0.24390					207.6	260.2	311.4	419.5	
J_SQ026d		0.21285					203.1	256.5	315.1	486.0	
J_SQ026e		0.22550					204.6	259.8	321.5	477.9	
J_SQ026f		0.24390					212.1	271	338.0	477.1	
J_SQ026g		0.26131					213.9	268.7	322.4	430.7	
J_SQ027		0.27331					216	271.6	327.5	435.4	
J_SQ029		0.42691					282.1	369	450.9	594.4	
J_SQ030		5.98831					1615.2	2059.1	2429.5	3206.1	
J_SQ031		6.08188					1383.1	1692.8	2073.3	2770.9	
J_SQ034		6.26240					1481.1	1823.8	2242.5	3023.6	
J_SQ035		6.28857					1470.8	1801.9	2188.7	2992.0	
J_SQ037		6.40425					1508.7	1837.7	2220.6	2997.4	
J_SQ039		6.50390					1572.7	1879.9	2270.3	3071.6	
J_SQ040		6.76735					1958.3	2276.6	2607.3	3185.4	
J_SQ041		7.03018					1960.1	2335.2	2768.3	3525.4	
POST-PROJECT											
SQ034e	0.09087	0.09087	95.46	9.1			230.3	278.9	327.8	419.8	
SQ034f	0.01191	0.01191	87.10	6.47			22.7	29.5	36.4	49.4	
SQ036	0.01473	0.01473	85.1	7.7			38.7	47.1	55.7	71.7	Proposed site.
Stone Creek Phase 7		0.09087					58.8	64.8	70.2	127.9	
R_SQ015e		0.22818					204.3	259.1	319.4	455.6	
R_SQ015f		0.24658					206.5	257.6	308.0	414.1	
J_SQ026d		0.21627					203.2	256.1	314.4	474.6	
J_SQ026e		0.22818					204.4	259	320.1	469.0	
J_SQ026f		0.24658					212	269.7	336.4	473.6	
J_SQ026g		0.26131					211.9	264.4	316.3	423.3	
J_SQ027		0.27331					213.9	267.1	321.1	428.0	
J_SQ029		0.42691					281.3	365.9	445.7	586.9	
J_SQ030		5.98831					1608.9	2049.6	2417.7	3186.3	
J_SQ031		6.08188					1379.7	1687.2	2063.6	2757.6	
J_SQ034		6.26240					1478.1	1818.6	2233.4	3010.4	
J_SQ035		6.28857					1467.9	1797.2	2180.1	2978.7	
J_SQ037		6.40425					1506.2	1833.2	2212.4	2985.8	
J_SQ039		6.50390					1572.9	1875.9	2262.1	3060.1	
J_SQ040		6.76735					1958.6	2276.8	2607.5	3185.4	
J_SQ041		7.03018					1960.5	2335.4	2768.4	3525.4	

100-YEAR DISCHARGE COMPARISON

PRE-PROJECT		POST-PROJECT		
DESIGN POINT	DISCHARGE	DESIGN POINT	DISCHARGE	DIFFERENCE
SQ034e	403.8	SQ034e	419.8	16.0
SQ034f	52.9	SQ034f	49.4	-3.5
SQ036	77.8	SQ036	71.7	-6.1
Stone Creek Phase 7	136.3	Stone Creek Phase 7	127.9	-8.4
J_SQ026d	486.0	J_SQ026d	474.6	-11.4
J_SQ026e	477.9	J_SQ026e	469.0	-8.9
J_SQ026f	477.1	J_SQ026f	473.6	-3.5
J_SQ026g	430.7	J_SQ026g	423.3	-7.4
J_SQ027	435.4	J_SQ027	428.0	-7.4
J_SQ029	594.4	J_SQ029	586.9	-7.5
J_SQ030	3206.1	J_SQ030	3186.3	-19.8
J_SQ031	2770.9	J_SQ031	2757.6	-13.3
J_SQ034	3023.6	J_SQ034	3010.4	-13.2
J_SQ035	2992.0	J_SQ035	2978.7	-13.3
J_SQ037	2997.4	J_SQ037	2985.8	-11.6
J_SQ039	3071.6	J_SQ039	3060.1	-11.5
J_SQ040	3185.4	J_SQ040	3185.4	0.0
J_SQ041	3525.4	J_SQ041	3525.4	0.0

25-YEAR DISCHARGE COMPARISON

PRE-PROJECT		POST-PROJECT		
DESIGN POINT	DISCHARGE	DESIGN POINT	DISCHARGE	DIFFERENCE
SQ034e	315.2	SQ034e	327.8	12.6
SQ034f	39.0	SQ034f	36.4	-2.6
SQ036	59.3	SQ036	55.7	-3.6
Stone Creek Phase 7	70.8	Stone Creek Phase 7	70.2	-0.6
J_SQ026d	315.1	J_SQ026d	314.4	-0.7
J_SQ026e	321.5	J_SQ026e	320.1	-1.4
J_SQ026f	338.0	J_SQ026f	336.4	-1.6
J_SQ026g	322.4	J_SQ026g	316.3	-6.1
J_SQ027	327.5	J_SQ027	321.1	-6.4
J_SQ029	450.9	J_SQ029	445.7	-5.2
J_SQ030	2429.5	J_SQ030	2417.7	-11.8
J_SQ031	2073.3	J_SQ031	2063.6	-9.7
J_SQ034	2242.5	J_SQ034	2233.4	-9.1
J_SQ035	2188.7	J_SQ035	2180.1	-8.6
J_SQ037	2220.6	J_SQ037	2212.4	-8.2
J_SQ039	2270.3	J_SQ039	2262.1	-8.2
J_SQ040	2607.3	J_SQ040	2607.5	0.2
J_SQ041	2768.3	J_SQ041	2768.4	0.1

10-YEAR DISCHARGE COMPARISON

PRE-PROJECT		POST-PROJECT		
DESIGN POINT	DISCHARGE	DESIGN POINT	DISCHARGE	DIFFERENCE
SQ034e	268.2	SQ034e	278.9	10.7
SQ034f	31.7	SQ034f	29.5	-2.2
SQ036	49.4	SQ036	47.1	-2.3
Stone Creek Phase 7	65.1	Stone Creek Phase 7	64.8	-0.3
J_SQ026d	256.5	J_SQ026d	256.1	-0.4
J_SQ026e	259.8	J_SQ026e	259.0	-0.8
J_SQ026f	271.0	J_SQ026f	269.7	-1.3
J_SQ026g	268.7	J_SQ026g	264.4	-4.3
J_SQ027	271.6	J_SQ027	267.1	-4.5
J_SQ029	369.0	J_SQ029	365.9	-3.1
J_SQ030	2059.1	J_SQ030	2049.6	-9.5
J_SQ031	1692.8	J_SQ031	1687.2	-5.6
J_SQ034	1823.8	J_SQ034	1818.6	-5.2
J_SQ035	1801.9	J_SQ035	1797.2	-4.7
J_SQ037	1837.7	J_SQ037	1833.2	-4.5
J_SQ039	1879.9	J_SQ039	1875.9	-4.0
J_SQ040	2276.6	J_SQ040	2276.8	0.2
J_SQ041	2335.2	J_SQ041	2335.4	0.2

5-YEAR DISCHARGE COMPARISON

PRE-PROJECT		POST-PROJECT		
DESIGN POINT	DISCHARGE	DESIGN POINT	DISCHARGE	DIFFERENCE
SQ034e	221.3	SQ034e	230.3	9.0
SQ034f	24.5	SQ034f	22.7	-1.8
SQ036	39.6	SQ036	38.7	-0.9
Stone Creek Phase 7	58.7	Stone Creek Phase 7	58.8	0.1
J_SQ026d	203.1	J_SQ026d	203.2	0.1
J_SQ026e	204.6	J_SQ026e	204.4	-0.2
J_SQ026f	212.1	J_SQ026f	212.0	-0.1
J_SQ026g	213.9	J_SQ026g	211.9	-2.0
J_SQ027	216.0	J_SQ027	213.9	-2.1
J_SQ029	282.1	J_SQ029	281.3	-0.8
J_SQ030	1615.2	J_SQ030	1608.9	-6.3
J_SQ031	1383.1	J_SQ031	1379.7	-3.4
J_SQ034	1481.1	J_SQ034	1478.1	-3.0
J_SQ035	1470.8	J_SQ035	1467.9	-2.9
J_SQ037	1508.7	J_SQ037	1506.2	-2.5
J_SQ039	1572.7	J_SQ039	1572.9	0.2
J_SQ040	1958.3	J_SQ040	1958.6	0.3
J_SQ041	1960.1	J_SQ041	1960.5	0.4

BANNISTER ENGINEERING
240 North Mitchell Road | Mansfield, TX 76063| 817.842.2094| 817.842.2095 fax
REGISTRATION # F-10599 (TEXAS)

STONE CREEK RETAIL
ROCKWALL, TEXAS

OVERALL PROPOSED DRAINAGE CALCULATIONS

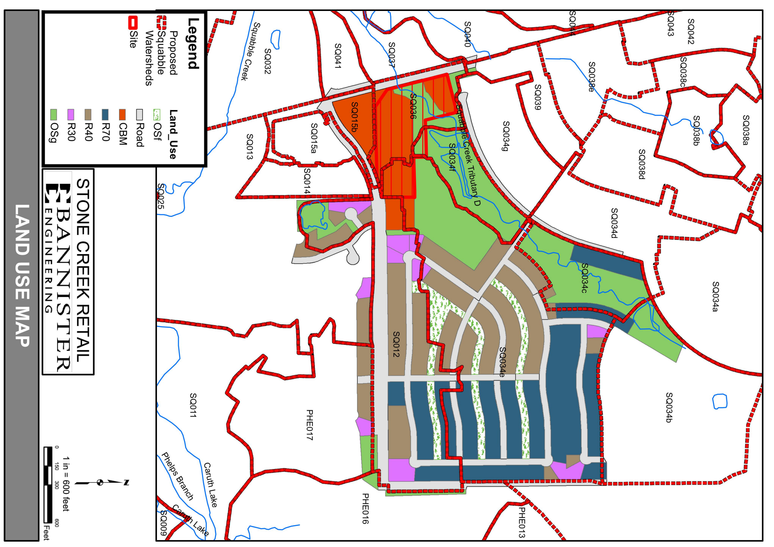
No.	Date	Revision Description

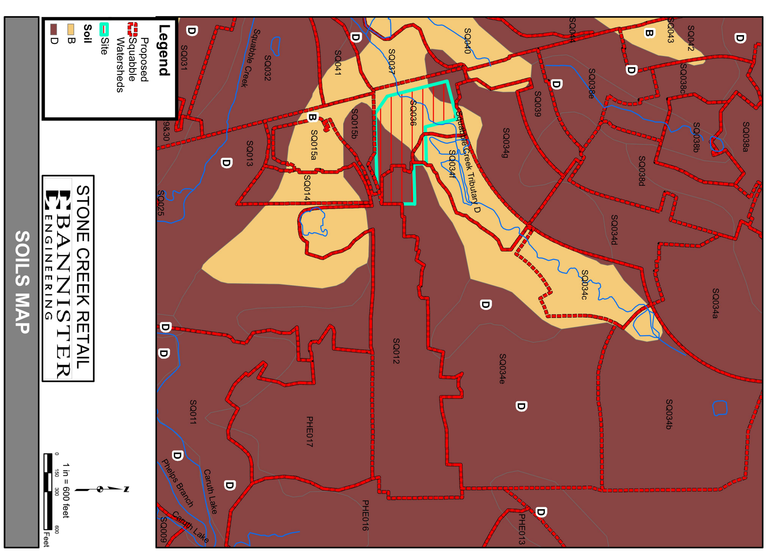
PROJECT NO.: 262--21--001

STATE OF TEXAS
MICHAEL J. MOORE
128498
LICENSED
PROFESSIONAL ENGINEER
3/15/2022

SHEET NUMBER
10

File: B:\Clients\262 (DuWest)\262--21--001 (Stone Creek Retail -- Rockwall)\Flood Study\Overall Proposed Drainage Area Map.dwg || Date Plotted: 3/15/2022 3:22 PM || Plotted By: mmoore





No.	Date	Revision Description

PROJECT NO.: 262-21-001

STONE CREEK RETAIL

ROCKWALL, TEXAS

PROPOSED LAND USE & SOILS MAP

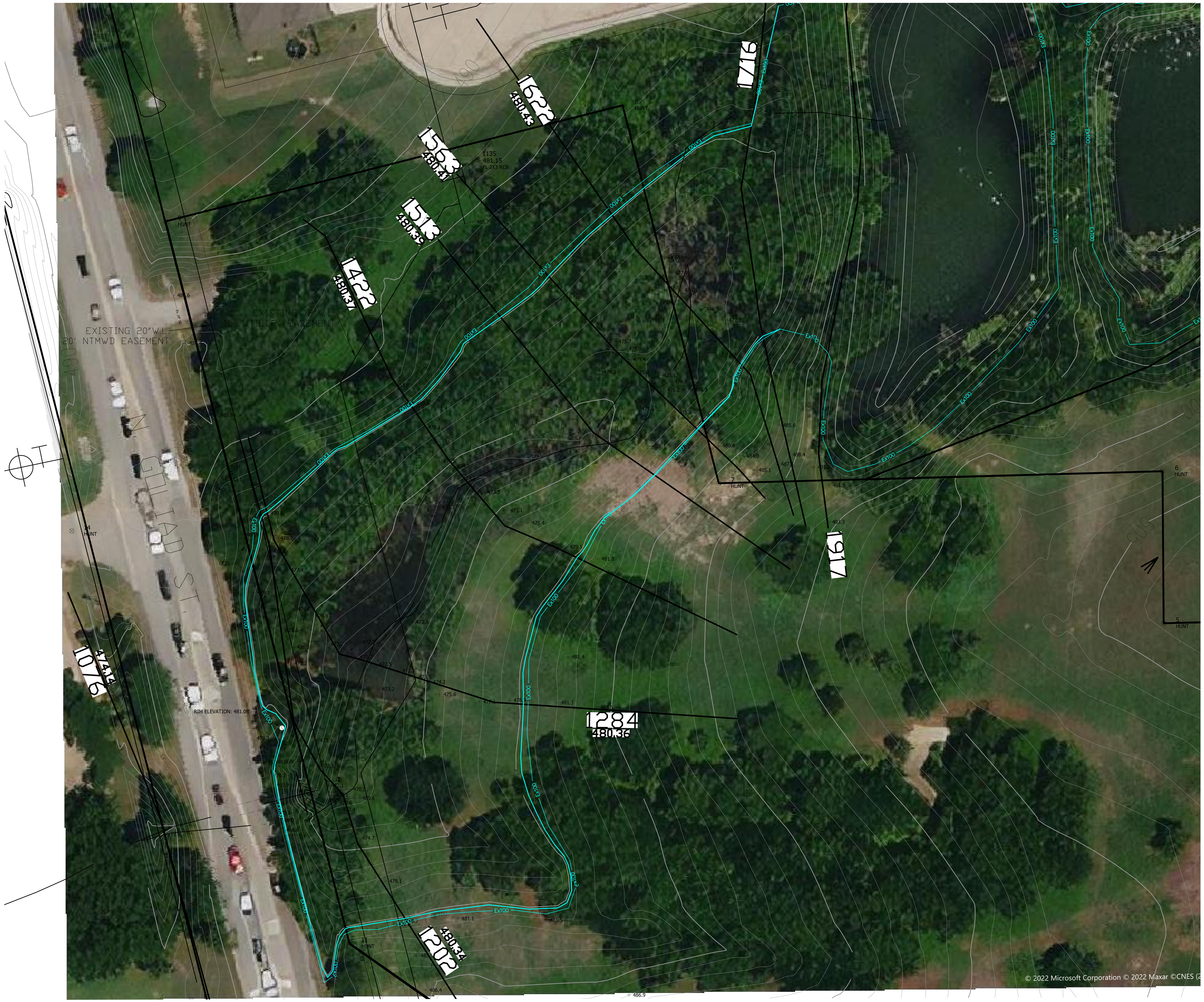
BANNISTER ENGINEERING
240 North Mitchell Road | Mansfield, TX 76063| 817.842.2094| 817.842.2095 fax
REGISTRATION # F-10599 (TEXAS)

STATE OF TEXAS
MICHAEL J. MOORE
128498
LICENSED PROFESSIONAL ENGINEER

3/15/2022

SHEET NUMBER
11

File: B:\Clients\262 (DuWest)\262-21-001 (Stone Creek Retail - Rockwall)\Flood Study\Hydraulic Work Map 262-21-001.dwg || Date Plotted: 3/15/2022 3:25 PM || Plotted By: mmoore



N

GRAPHIC SCALE

30 0 15 30 60

(IN FEET)
1 inch = 30 ft.

LEGEND

— — —631— — —	EXISTING CONTOUR
orange dashed line	INEFFECTIVE FLOW LIMIT
——EF100——	EFFECTIVE 100-YEAR FLOODPLAIN
——EX100——	PRE-PROJECT 100-YEAR FLOODPLAIN
thick cyan line	PRE-PROJECT MDS 100YR FLOODPLAIN

BENCHMARKS

BM#1:
CITY OF ROCKWALL MONUMENT 14

NAVD88
ELEV.=497.13

BANNISTER
ENGINEERING
240 N. Mitchell Road | Mansfield, TX 76063 | 817.842.2094 | 817.842.2095 fax
REGISTRATION # F-10599 (TEXAS)

STONE CREEK RETAIL

ROCKWALL, TEXAS

EXISTING HYDRAULIC WORK MAP

No.	Date	Revision Description

PROJECT NO.: 262-21-001

STATE OF TEXAS
MICHAEL J. MOORE
128498
LICENSED
PROFESSIONAL ENGINEER

3/15/2022

SHEET NUMBER

12

HEC-RAS Plan: Pre-Proj River: RIVER-1 Reach: Reach-1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	4830	10 Year	282.80	519.35	520.87	520.87	521.29	0.025442	5.22	54.13	65.25	1.01
Reach-1	4830	50 Year	380.30	519.35	521.06	521.06	521.56	0.024427	5.65	67.39	72.18	1.02
Reach-1	4830	100 Year	428.80	519.35	521.15	521.15	521.68	0.023297	5.84	73.74	75.26	1.01
Reach-1	4830	500 Year	532.40	519.35	521.32	521.32	521.92	0.021548	6.21	87.15	81.38	0.99
Reach-1	4587	10 Year	282.80	513.00	518.86		518.87	0.000044	0.69	430.47	117.28	0.06
Reach-1	4587	50 Year	380.30	513.00	519.62		519.63	0.000047	0.78	525.32	135.41	0.06
Reach-1	4587	100 Year	428.80	513.00	519.73		519.74	0.000055	0.86	540.77	138.23	0.06
Reach-1	4587	500 Year	532.40	513.00	519.89		519.91	0.000076	1.03	563.88	142.35	0.08
Reach-1	4437	10 Year	221.00	513.00	518.87	513.47	518.87	0.000005	0.24	926.41	201.01	0.02
Reach-1	4437	50 Year	335.20	513.00	519.62	513.61	519.62	0.000008	0.31	1083.55	217.60	0.02
Reach-1	4437	100 Year	390.40	513.00	519.73	513.68	519.73	0.000010	0.35	1108.31	220.27	0.03
Reach-1	4437	500 Year	493.30	513.00	519.90	513.80	519.90	0.000014	0.43	1145.06	224.17	0.03
Reach-1	4338		Culvert									
Reach-1	4291	10 Year	272.80	510.40	512.89	512.89	513.25	0.028885	5.18	66.91	100.17	0.83
Reach-1	4291	50 Year	409.00	510.40	513.15	513.15	513.54	0.028737	5.59	95.01	113.44	0.84
Reach-1	4291	100 Year	479.10	510.40	513.25	513.25	513.66	0.029747	5.86	105.98	116.21	0.87
Reach-1	4291	500 Year	623.10	510.40	513.41	513.41	513.90	0.032533	6.42	124.98	120.85	0.92
Reach-1	4188	10 Year	272.80	508.32	510.93	510.68	511.05	0.017514	3.45	106.19	127.12	0.47
Reach-1	4188	50 Year	409.00	508.32	511.15	510.83	511.31	0.019117	3.91	134.76	130.67	0.50
Reach-1	4188	100 Year	479.10	508.32	511.24	510.92	511.42	0.020174	4.15	146.88	132.32	0.52
Reach-1	4188	500 Year	623.10	508.32	511.41	511.06	511.63	0.021960	4.57	169.63	135.38	0.55
Reach-1	3967	10 Year	272.80	501.10	505.24	505.24	505.74	0.036683	6.03	55.71	58.76	0.68
Reach-1	3967	50 Year	409.00	501.10	505.69	505.59	506.16	0.031380	6.25	85.16	73.06	0.65
Reach-1	3967	100 Year	479.10	501.10	505.89	505.74	506.34	0.028808	6.26	100.58	79.53	0.63
Reach-1	3967	500 Year	623.10	501.10	506.23		506.67	0.025430	6.31	128.62	85.54	0.60
Reach-1	3831	10 Year	272.80	498.10	502.86		503.01	0.011138	3.28	88.38	45.66	0.38
Reach-1	3831	50 Year	409.00	498.10	503.37		503.57	0.012865	3.81	114.80	55.84	0.41
Reach-1	3831	100 Year	479.10	498.10	503.58		503.81	0.013304	4.07	126.49	58.50	0.43
Reach-1	3831	500 Year	623.10	498.10	503.96		504.24	0.013766	4.51	150.16	63.54	0.44
Reach-1	3669	10 Year	272.80	496.18	501.34		501.49	0.009474	3.50	97.14	66.90	0.36

HEC-RAS Plan: Pre-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	3669	50 Year	409.00	496.18	501.93		502.08	0.008351	3.54	138.10	71.48	0.34
Reach-1	3669	100 Year	479.10	496.18	502.19		502.34	0.007954	3.61	156.49	74.02	0.34
Reach-1	3669	500 Year	623.10	496.18	502.64		502.81	0.007470	3.79	191.09	78.93	0.34
Reach-1	3525	10 Year	272.80	495.50	499.43		499.78	0.021679	4.75	58.19	30.05	0.56
Reach-1	3525	50 Year	409.00	495.50	500.17		500.57	0.019240	5.14	84.12	40.85	0.54
Reach-1	3525	100 Year	479.10	495.50	500.48		500.89	0.018499	5.30	97.52	46.09	0.54
Reach-1	3525	500 Year	623.10	495.50	501.03		501.46	0.017060	5.51	125.54	55.36	0.53
Reach-1	3310	10 Year	272.80	492.48	497.61		497.71	0.005232	2.53	107.87	42.71	0.28
Reach-1	3310	50 Year	409.00	492.48	498.32		498.46	0.005731	2.91	140.53	49.72	0.30
Reach-1	3310	100 Year	479.10	492.48	498.62		498.77	0.005955	3.09	155.64	53.10	0.31
Reach-1	3310	500 Year	623.10	492.48	499.13		499.31	0.006414	3.42	184.32	59.50	0.33
Reach-1	3134	10 Year	272.80	491.51	495.61		495.98	0.023895	4.98	58.90	36.49	0.58
Reach-1	3134	50 Year	409.00	491.51	496.17		496.61	0.024250	5.57	81.76	45.51	0.60
Reach-1	3134	100 Year	479.10	491.51	496.42		496.88	0.024163	5.79	93.28	49.58	0.60
Reach-1	3134	500 Year	623.10	491.51	496.87		497.37	0.023271	6.08	117.44	57.20	0.60
Reach-1	2997	10 Year	303.70	491.25	494.56		494.64	0.004711	2.37	138.05	74.88	0.27
Reach-1	2997	50 Year	452.40	491.25	495.04		495.14	0.005251	2.81	174.98	81.53	0.29
Reach-1	2997	100 Year	530.10	491.25	495.24		495.37	0.005483	3.01	192.10	84.62	0.30
Reach-1	2997	500 Year	691.20	491.25	495.56		495.72	0.006290	3.44	220.04	89.43	0.33
Reach-1	2917	10 Year	303.70	491.50	493.20	493.20	493.72	0.062827	6.20	55.28	55.23	0.91
Reach-1	2917	50 Year	452.40	491.50	493.55	493.55	494.16	0.058026	6.86	75.79	63.63	0.90
Reach-1	2917	100 Year	530.10	491.50	493.70	493.70	494.36	0.056110	7.14	86.06	67.44	0.90
Reach-1	2917	500 Year	691.20	491.50	494.20		494.75	0.036216	6.67	122.54	79.52	0.75
Reach-1	2800	10 Year	303.70	490.60	492.98		493.00	0.001201	1.24	250.40	138.69	0.16
Reach-1	2800	50 Year	452.40	490.60	493.42		493.45	0.001325	1.49	312.59	144.40	0.17
Reach-1	2800	100 Year	530.10	490.60	493.65		493.69	0.001313	1.58	347.06	147.47	0.17
Reach-1	2800	500 Year	691.20	490.60	494.14		494.18	0.001236	1.72	419.93	153.76	0.17
Reach-1	2677	10 Year	303.70	490.30	492.21	492.15	492.55	0.032680	5.55	73.28	86.01	0.78
Reach-1	2677	50 Year	452.40	490.30	492.85		493.05	0.013683	4.51	135.96	110.28	0.54
Reach-1	2677	100 Year	530.10	490.30	493.15		493.33	0.009900	4.19	171.01	119.22	0.47
Reach-1	2677	500 Year	691.20	490.30	493.74		493.88	0.005963	3.74	244.98	131.60	0.37

HEC-RAS Plan: Pre-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	2550	10 Year	303.70	489.63	492.32		492.34	0.000270	1.16	303.29	144.04	0.13
Reach-1	2550	50 Year	452.40	489.63	492.86		492.89	0.000305	1.39	384.05	155.11	0.14
Reach-1	2550	100 Year	530.10	489.63	493.14		493.17	0.000306	1.48	429.02	161.23	0.14
Reach-1	2550	500 Year	691.20	489.63	493.72		493.75	0.000297	1.61	525.05	174.12	0.14
Reach-1	2396	10 Year	270.70	489.63	492.28		492.30	0.000248	1.05	270.77	124.71	0.12
Reach-1	2396	50 Year	416.40	489.63	492.81		492.84	0.000306	1.31	339.70	134.32	0.14
Reach-1	2396	100 Year	484.70	489.63	493.10		493.13	0.000303	1.38	382.92	227.01	0.14
Reach-1	2396	500 Year	628.80	489.63	493.68		493.71	0.000268	1.45	517.24	237.64	0.13
Reach-1	2200	10 Year	270.70	489.63	492.19		492.23	0.000539	1.49	183.10	82.84	0.17
Reach-1	2200	50 Year	416.40	489.63	492.70		492.75	0.000670	1.87	225.78	86.47	0.20
Reach-1	2200	100 Year	484.70	489.63	492.98		493.04	0.000663	1.97	250.48	88.51	0.20
Reach-1	2200	500 Year	628.80	489.63	493.56		493.63	0.000616	2.11	326.36	240.58	0.20
Reach-1	2028	10 Year	270.70	487.50	491.66		491.96	0.013209	4.35	62.33	28.40	0.52
Reach-1	2028	50 Year	416.40	487.50	491.65		492.35	0.031961	6.74	61.86	28.33	0.80
Reach-1	2028	100 Year	484.70	487.50	491.58	491.54	492.60	0.047555	8.09	59.92	28.06	0.98
Reach-1	2028	500 Year	628.80	487.50	491.96	491.96	493.18	0.049168	8.89	70.78	29.53	1.01
Reach-1	1973	10 Year	270.70	488.58	491.81		491.81	0.000014	0.30	908.57	290.49	0.03
Reach-1	1973	50 Year	416.40	488.58	491.99		491.99	0.000028	0.44	961.51	291.76	0.04
Reach-1	1973	100 Year	484.70	488.58	492.07		492.08	0.000034	0.50	986.86	292.53	0.05
Reach-1	1973	500 Year	628.80	488.58	492.21		492.22	0.000051	0.62	1027.78	293.77	0.06
Reach-1	1917	10 Year	270.70	489.00	491.58	491.58	491.78	0.026517	5.28	98.54	218.48	0.74
Reach-1	1917	50 Year	416.40	489.00	491.72	491.72	491.96	0.029801	5.93	131.47	239.74	0.80
Reach-1	1917	100 Year	484.70	489.00	491.74	491.74	492.04	0.037775	6.71	134.85	241.82	0.90
Reach-1	1917	500 Year	628.80	489.00	491.90	491.90	492.18	0.033371	6.69	177.20	287.74	0.86
Reach-1	1716	10 Year	270.70	478.80	480.16		480.22	0.008586	2.05	132.35	128.71	0.35
Reach-1	1716	50 Year	416.40	478.80	480.12		480.28	0.023283	3.29	126.91	127.44	0.57
Reach-1	1716	100 Year	484.70	478.80	480.60		480.70	0.008481	2.57	192.05	141.86	0.37
Reach-1	1716	500 Year	628.80	478.80	481.83		481.87	0.001712	1.72	386.84	173.90	0.18
Reach-1	1622	10 Year	279.70	476.80	478.01	478.01	478.38	0.068920	5.10	61.51	85.46	0.91
Reach-1	1622	50 Year	391.30	476.80	479.25		479.33	0.005417	2.47	183.82	112.06	0.29

HEC-RAS Plan: Pre-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1622	100 Year	435.70	476.80	480.38		480.41	0.001314	1.60	322.83	133.82	0.15
Reach-1	1622	500 Year	551.50	476.80	481.76		481.78	0.000527	1.28	524.56	158.65	0.10
Reach-1	1563	10 Year	279.70	474.30	477.19		477.27	0.006180	2.49	133.79	98.40	0.31
Reach-1	1563	50 Year	391.30	474.30	479.21		479.23	0.000678	1.30	371.74	137.85	0.11
Reach-1	1563	100 Year	435.70	474.30	480.36		480.37	0.000289	1.00	543.74	158.28	0.08
Reach-1	1563	500 Year	551.50	474.30	481.75		481.76	0.000167	0.89	775.58	176.12	0.06
Reach-1	1513	10 Year	279.70	474.00	476.90		476.99	0.005430	2.62	127.76	81.22	0.30
Reach-1	1513	50 Year	391.30	474.00	479.17		479.19	0.000616	1.37	366.60	127.71	0.11
Reach-1	1513	100 Year	435.70	474.00	480.35		480.36	0.000283	1.08	529.28	149.60	0.08
Reach-1	1513	500 Year	551.50	474.00	481.74		481.75	0.000174	0.98	756.47	176.81	0.06
Reach-1	1422	10 Year	279.70	471.64	476.67		476.72	0.001809	2.21	188.62	91.69	0.19
Reach-1	1422	50 Year	391.30	471.64	479.14		479.15	0.000308	1.23	469.40	133.97	0.08
Reach-1	1422	100 Year	435.70	471.64	480.33		480.34	0.000164	1.00	638.73	151.14	0.06
Reach-1	1422	500 Year	551.50	471.64	481.73		481.74	0.000115	0.93	864.78	172.08	0.05
Reach-1	1284	10 Year	279.70	472.20	476.60		476.61	0.000421	0.99	346.78	142.03	0.09
Reach-1	1284	50 Year	391.30	472.20	479.13		479.13	0.000090	0.64	796.37	211.62	0.05
Reach-1	1284	100 Year	435.70	472.20	480.32		480.33	0.000051	0.54	1068.22	242.02	0.03
Reach-1	1284	500 Year	551.50	472.20	481.73		481.73	0.000037	0.52	1429.72	273.96	0.03
Reach-1	1202	10 Year	279.70	469.60	476.54	472.82	476.57	0.000389	1.51	219.63	173.52	0.11
Reach-1	1202	50 Year	391.30	469.60	479.10	473.30	479.12	0.000169	1.28	349.96	263.32	0.08
Reach-1	1202	100 Year	435.70	469.60	480.30	473.47	480.32	0.000124	1.20	411.23	290.66	0.07
Reach-1	1202	500 Year	551.50	469.60	481.70	473.88	481.72	0.000117	1.28	482.55	317.93	0.07
Reach-1	1119.5		Culvert									
Reach-1	1076	10 Year	282.00	469.20	472.93	472.93	474.78	0.023479	10.91	25.85	87.56	1.00
Reach-1	1076	50 Year	395.80	469.20	473.87	473.87	476.19	0.021797	12.22	32.39	128.13	1.00
Reach-1	1076	100 Year	440.80	469.20	474.20	474.20	476.71	0.021461	12.70	34.72	140.97	1.00
Reach-1	1076	500 Year	555.70	469.20	474.90	474.90	475.09	0.002633	4.85	190.24	165.71	0.36
Reach-1	1026	10 Year	282.00	465.90	471.01		471.06	0.000698	1.99	181.74	85.91	0.17
Reach-1	1026	50 Year	395.80	465.90	471.24		471.32	0.001080	2.56	202.38	93.46	0.22
Reach-1	1026	100 Year	440.80	465.90	471.40		471.49	0.001136	2.69	217.83	98.73	0.22

HEC-RAS Plan: Pre-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1026	500 Year	555.70	465.90	471.51		471.65	0.001612	3.26	229.14	102.43	0.27
Reach-1	981	10 Year	282.00	465.70	470.99		471.03	0.000553	1.85	200.66	97.08	0.16
Reach-1	981	50 Year	395.80	465.70	471.20		471.28	0.000872	2.40	222.73	105.91	0.20
Reach-1	981	100 Year	440.80	465.70	471.36		471.44	0.000921	2.52	240.09	112.38	0.20
Reach-1	981	500 Year	555.70	465.70	471.46		471.58	0.001331	3.07	251.04	116.27	0.25
Reach-1	918	10 Year	282.00	465.30	470.98		471.00	0.000248	1.24	310.87	138.11	0.10
Reach-1	918	50 Year	395.80	465.30	471.20		471.23	0.000390	1.61	341.55	145.46	0.13
Reach-1	918	100 Year	440.80	465.30	471.36		471.39	0.000411	1.69	365.21	150.88	0.14
Reach-1	918	500 Year	555.70	465.30	471.45		471.50	0.000595	2.06	379.59	154.08	0.17
Reach-1	833	10 Year	282.00	464.10	470.97	468.82	470.98	0.000154	1.01	445.86	201.91	0.07
Reach-1	833	50 Year	395.80	464.10	471.18	469.99	471.19	0.000276	1.38	489.21	211.73	0.09
Reach-1	833	100 Year	440.80	464.10	471.34	470.27	471.35	0.000286	1.43	523.46	217.95	0.09
Reach-1	833	500 Year	555.70	464.10	471.43	470.27	471.45	0.000414	1.73	542.53	221.34	0.11
Reach-1	817.5		Culvert									
Reach-1	802	10 Year	282.00	463.92	467.34	466.81	467.44	0.005690	3.52	134.62	107.33	0.34
Reach-1	802	50 Year	395.80	463.92	467.74	466.81	467.85	0.005549	3.76	182.16	128.59	0.34
Reach-1	802	100 Year	440.80	463.92	467.88	466.82	467.99	0.005497	3.83	200.36	135.85	0.35
Reach-1	802	500 Year	555.70	463.92	468.18	467.06	468.29	0.005376	3.99	243.25	146.09	0.35
Reach-1	726	10 Year	282.00	463.60	466.81		466.93	0.008483	2.84	107.79	76.39	0.34
Reach-1	726	50 Year	395.80	463.60	467.17		467.32	0.008976	3.24	138.43	91.08	0.36
Reach-1	726	100 Year	440.80	463.60	467.30		467.46	0.009085	3.37	150.37	96.20	0.37
Reach-1	726	500 Year	555.70	463.60	467.56		467.75	0.009732	3.71	176.62	106.60	0.38
Reach-1	635	10 Year	282.00	462.00	464.69	464.69	465.28	0.055775	6.34	49.72	48.27	0.84
Reach-1	635	50 Year	395.80	462.00	465.06	465.06	465.67	0.048502	6.71	69.95	61.60	0.81
Reach-1	635	100 Year	440.80	462.00	465.18	465.18	465.81	0.047404	6.87	77.23	65.74	0.81
Reach-1	635	500 Year	555.70	462.00	465.48	465.45	466.10	0.041128	6.97	99.15	76.87	0.77
Reach-1	619	10 Year	282.00	460.00	464.25		464.55	0.018752	4.45	64.29	35.08	0.50
Reach-1	619	50 Year	395.80	460.00	464.66		465.07	0.020718	5.19	82.06	50.78	0.54
Reach-1	619	100 Year	440.80	460.00	464.80		465.24	0.021169	5.42	89.57	56.11	0.55
Reach-1	619	500 Year	555.70	460.00	465.11		465.61	0.022059	5.90	108.69	67.81	0.57

HEC-RAS Plan: Pre-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	495	10 Year	282.00	458.30	462.20		462.37	0.016112	3.28	86.59	60.43	0.45
Reach-1	495	50 Year	395.80	458.30	462.56		462.77	0.015970	3.72	111.07	76.60	0.46
Reach-1	495	100 Year	440.80	458.30	462.67		462.90	0.016008	3.87	120.53	82.00	0.47
Reach-1	495	500 Year	555.70	458.30	462.94		463.20	0.016084	4.20	144.27	94.20	0.48
Reach-1	393	10 Year	282.00	456.95	460.91	459.87	461.07	0.010542	3.50	103.01	95.31	0.39
Reach-1	393	50 Year	395.80	456.95	461.17	460.61	461.37	0.012367	4.04	129.30	106.93	0.42
Reach-1	393	100 Year	440.80	456.95	461.26	460.74	461.48	0.012933	4.22	139.10	110.95	0.44
Reach-1	393	500 Year	555.70	456.95	461.45	460.94	461.71	0.014548	4.67	160.99	119.45	0.47

HEC-RAS Plan: PrePro River: RIVER-1 Reach: Reach-1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	4830	10yr	294.00	519.35	520.89	520.89	521.32	0.025262	5.26	55.84	66.19	1.01
Reach-1	4830	50yr	392.00	519.35	521.08	521.08	521.59	0.024217	5.70	68.85	72.90	1.01
Reach-1	4830	100yr	441.00	519.35	521.17	521.17	521.71	0.022900	5.88	75.49	76.09	1.00
Reach-1	4830	500yr	544.00	519.35	521.34	521.34	521.94	0.021345	6.25	88.70	82.06	0.99
Reach-1	4587	10yr	294.00	513.00	518.52		518.53	0.000062	0.78	391.12	110.37	0.06
Reach-1	4587	50yr	392.00	513.00	519.59		519.60	0.000050	0.81	521.85	134.77	0.06
Reach-1	4587	100yr	441.00	513.00	519.73		519.74	0.000058	0.89	540.59	138.20	0.07
Reach-1	4587	500yr	544.00	513.00	519.89		519.90	0.000080	1.06	563.04	142.20	0.08
Reach-1	4437	10yr	204.00	513.00	518.52	513.44	518.52	0.000006	0.24	857.91	195.92	0.02
Reach-1	4437	50yr	324.00	513.00	519.59	513.60	519.59	0.000007	0.30	1078.05	217.00	0.02
Reach-1	4437	100yr	378.00	513.00	519.73	513.67	519.73	0.000009	0.34	1108.10	220.24	0.03
Reach-1	4437	500yr	481.00	513.00	519.89	513.78	519.89	0.000013	0.42	1143.84	224.05	0.03
Reach-1	4338		Culvert									
Reach-1	4291	10yr	204.00	510.40	512.70	512.70	513.05	0.029995	5.00	48.89	80.77	0.83
Reach-1	4291	50yr	324.00	510.40	513.01	513.01	513.37	0.028699	5.32	78.82	109.22	0.83
Reach-1	4291	100yr	378.00	510.40	513.11	513.11	513.48	0.028395	5.47	89.70	112.07	0.84
Reach-1	4291	500yr	481.00	510.40	513.25	513.25	513.67	0.029759	5.87	106.28	116.28	0.87
Reach-1	4188	10yr	204.00	508.32	510.82	510.58	510.91	0.014858	3.04	92.35	125.82	0.43
Reach-1	4188	50yr	324.00	508.32	511.02	510.75	511.15	0.017870	3.61	118.18	128.36	0.48
Reach-1	4188	100yr	378.00	508.32	511.11	510.81	511.25	0.018552	3.80	129.23	129.90	0.49
Reach-1	4188	500yr	481.00	508.32	511.25	510.92	511.43	0.019607	4.11	148.64	132.56	0.51
Reach-1	3967	10yr	204.00	501.10	504.78	504.65	505.36	0.052446	6.25	34.82	27.40	0.79
Reach-1	3967	50yr	324.00	501.10	505.42	505.39	505.91	0.035153	6.18	66.38	64.31	0.68
Reach-1	3967	100yr	378.00	501.10	505.59	505.53	506.07	0.032930	6.25	78.06	69.88	0.66
Reach-1	3967	500yr	481.00	501.10	505.88	505.74	506.35	0.029893	6.36	99.39	79.05	0.64
Reach-1	3831	10yr	204.00	498.10	502.49		502.61	0.010147	2.94	72.67	39.61	0.35
Reach-1	3831	50yr	324.00	498.10	503.09		503.26	0.012213	3.45	99.70	52.00	0.40
Reach-1	3831	100yr	378.00	498.10	503.29		503.47	0.012461	3.66	110.00	54.71	0.41
Reach-1	3831	500yr	481.00	498.10	503.62		503.84	0.012686	4.01	128.94	59.04	0.42
Reach-1	3669	10yr	216.00	496.18	500.99		501.14	0.009548	3.34	74.48	44.15	0.36

HEC-RAS Plan: PrePro River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	3669	50yr	326.00	496.18	501.59		501.74	0.008938	3.51	114.00	68.82	0.35
Reach-1	3669	100yr	386.00	496.18	501.84		501.99	0.008505	3.53	131.56	70.77	0.35
Reach-1	3669	500yr	505.00	496.18	502.27		502.43	0.007839	3.64	162.96	74.97	0.34
Reach-1	3525	10yr	216.00	495.50	499.07		499.38	0.022868	4.49	48.18	24.96	0.56
Reach-1	3525	50yr	326.00	495.50	499.77		500.13	0.019984	4.88	68.98	34.72	0.54
Reach-1	3525	100yr	386.00	495.50	500.08		500.46	0.019059	5.04	80.53	39.33	0.54
Reach-1	3525	500yr	505.00	495.50	500.60		501.01	0.017939	5.31	103.23	48.15	0.53
Reach-1	3310	10yr	216.00	492.48	497.18		497.27	0.005301	2.40	90.07	39.01	0.28
Reach-1	3310	50yr	326.00	492.48	497.85		497.97	0.005863	2.76	118.16	44.71	0.30
Reach-1	3310	100yr	386.00	492.48	498.15		498.28	0.006083	2.93	131.91	47.69	0.31
Reach-1	3310	500yr	505.00	492.48	498.64		498.80	0.006497	3.24	156.69	53.33	0.32
Reach-1	3134	10yr	216.00	491.51	495.66	494.61	495.89	0.012613	3.91	60.75	37.29	0.43
Reach-1	3134	50yr	326.00	491.51	496.26	495.20	496.53	0.012128	4.41	85.94	47.03	0.44
Reach-1	3134	100yr	386.00	491.51	496.48	495.47	496.78	0.012739	4.72	96.61	50.70	0.45
Reach-1	3134	500yr	505.00	491.51	496.89	495.92	497.24	0.013071	5.16	118.84	57.61	0.47
Reach-1	2997	10yr	253.00	492.00	493.78	493.08	493.96	0.015133	3.44	73.44	71.25	0.46
Reach-1	2997	50yr	378.00	492.00	494.08	493.39	494.38	0.019804	4.38	86.20	75.75	0.54
Reach-1	2997	100yr	448.00	492.00	494.40	493.56	494.71	0.017301	4.51	99.41	78.58	0.52
Reach-1	2997	500yr	589.00	492.00	494.99	493.86	495.34	0.014274	4.75	124.10	83.87	0.49
Reach-1	2957		Culvert									
Reach-1	2917	10yr	253.00	491.30	492.87	492.87	493.55	0.081943	6.60	38.35	28.83	1.01
Reach-1	2917	50yr	378.00	491.30	493.40	493.40	494.01	0.050474	6.46	63.58	69.46	0.84
Reach-1	2917	100yr	448.00	491.30	493.56	493.56	494.23	0.050717	6.84	71.38	72.73	0.85
Reach-1	2917	500yr	589.00	491.30	494.15		494.71	0.030046	6.25	101.12	87.84	0.68
Reach-1	2800	10yr	253.00	490.60	492.81		492.83	0.001119	1.13	228.22	136.59	0.15
Reach-1	2800	50yr	378.00	490.60	493.24		493.27	0.001205	1.35	287.41	142.11	0.16
Reach-1	2800	100yr	448.00	490.60	493.54		493.57	0.001088	1.40	330.88	146.04	0.16
Reach-1	2800	500yr	589.00	490.60	494.16		494.19	0.000874	1.45	423.65	154.07	0.14
Reach-1	2677	10yr	253.00	490.30	492.20		492.44	0.023691	4.70	72.10	85.48	0.67
Reach-1	2677	50yr	378.00	490.30	492.73		492.91	0.012461	4.15	123.25	105.81	0.51

HEC-RAS Plan: PrePro River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	2677	100yr	448.00	490.30	493.16		493.29	0.006924	3.51	172.25	119.43	0.39
Reach-1	2677	500yr	589.00	490.30	493.91		494.00	0.003358	2.91	267.59	135.16	0.28
Reach-1	2550	10yr	253.00	489.63	492.27		492.28	0.000201	0.98	296.19	143.03	0.11
Reach-1	2550	50yr	378.00	489.63	492.75		492.77	0.000242	1.21	366.83	152.82	0.12
Reach-1	2550	100yr	448.00	489.63	493.16		493.18	0.000216	1.24	430.98	161.50	0.12
Reach-1	2550	500yr	589.00	489.63	493.90		493.92	0.000184	1.31	556.55	178.14	0.11
Reach-1	2396	10yr	257.00	489.63	492.23		492.25	0.000238	1.02	264.93	123.86	0.12
Reach-1	2396	50yr	386.00	489.63	492.70		492.73	0.000298	1.27	324.90	132.31	0.13
Reach-1	2396	100yr	486.00	489.63	493.11		493.14	0.000301	1.38	385.41	227.21	0.14
Reach-1	2396	500yr	679.00	489.63	493.85		493.88	0.000260	1.48	559.40	240.89	0.13
Reach-1	2200	10yr	257.00	489.63	492.15		492.18	0.000516	1.44	179.56	82.53	0.17
Reach-1	2200	50yr	386.00	489.63	492.59		492.64	0.000654	1.81	216.59	85.70	0.20
Reach-1	2200	100yr	486.00	489.63	492.99		493.05	0.000658	1.97	251.51	88.59	0.20
Reach-1	2200	500yr	679.00	489.63	493.74		493.81	0.000588	2.13	369.71	243.57	0.20
Reach-1	2028	10yr	257.00	487.50	491.66		491.93	0.011925	4.13	62.30	28.39	0.49
Reach-1	2028	50yr	386.00	487.50	491.68		492.27	0.026230	6.15	62.84	28.47	0.73
Reach-1	2028	100yr	486.00	487.50	491.55	491.54	492.60	0.049798	8.23	59.09	27.95	1.00
Reach-1	2028	500yr	679.00	487.50	492.11	492.11	493.37	0.047784	9.02	75.36	30.13	1.00
Reach-1	1973	10yr	257.00	488.58	491.79		491.79	0.000013	0.29	904.21	290.41	0.03
Reach-1	1973	50yr	386.00	488.58	491.97		491.97	0.000024	0.41	955.18	291.56	0.04
Reach-1	1973	100yr	486.00	488.58	492.06		492.07	0.000035	0.50	983.21	292.42	0.05
Reach-1	1973	500yr	679.00	488.58	492.27		492.27	0.000056	0.66	1043.77	294.25	0.06
Reach-1	1917	10yr	260.00	489.00	491.57	491.57	491.77	0.026164	5.21	95.95	216.72	0.73
Reach-1	1917	50yr	398.00	489.00	491.71	491.71	491.94	0.028610	5.79	129.01	238.21	0.78
Reach-1	1917	100yr	478.00	489.00	491.74	491.74	492.03	0.035162	6.50	137.12	243.20	0.87
Reach-1	1917	500yr	692.00	489.00	491.95	491.95	492.23	0.032279	6.72	194.34	303.52	0.85
Reach-1	1716	10yr	260.00	478.80	480.14		480.20	0.008519	2.01	129.42	128.02	0.35
Reach-1	1716	50yr	398.00	478.80	480.18		480.31	0.017369	2.95	135.10	129.34	0.50
Reach-1	1716	100yr	478.00	478.80	480.55		480.65	0.009338	2.63	184.52	140.27	0.38
Reach-1	1716	500yr	692.00	478.80	481.79		481.84	0.002180	1.92	380.38	173.00	0.21

HEC-RAS Plan: PrePro River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1622	10yr	271.00	476.80	478.00	478.00	478.35	0.068780	5.04	60.23	85.12	0.91
Reach-1	1622	50yr	418.00	476.80	478.93		479.06	0.011545	3.24	148.49	105.44	0.42
Reach-1	1622	100yr	477.00	476.80	480.26		480.30	0.001811	1.84	307.53	131.74	0.18
Reach-1	1622	500yr	652.00	476.80	481.69		481.72	0.000779	1.54	514.15	157.46	0.13
Reach-1	1563	10yr	271.00	474.30	477.12		477.20	0.006768	2.54	126.60	96.73	0.32
Reach-1	1563	50yr	418.00	474.30	478.85		478.88	0.001139	1.58	323.68	130.90	0.15
Reach-1	1563	100yr	477.00	474.30	480.24		480.26	0.000383	1.14	524.68	156.61	0.09
Reach-1	1563	500yr	652.00	474.30	481.68		481.69	0.000244	1.07	763.30	175.19	0.07
Reach-1	1513	10yr	271.00	474.00	476.79		476.88	0.006234	2.71	118.55	78.51	0.32
Reach-1	1513	50yr	418.00	474.00	478.79		478.83	0.001020	1.67	319.52	120.48	0.14
Reach-1	1513	100yr	477.00	474.00	480.22		480.24	0.000373	1.22	510.61	147.20	0.09
Reach-1	1513	500yr	652.00	474.00	481.67		481.68	0.000255	1.17	743.41	175.33	0.08
Reach-1	1422	10yr	271.00	471.64	476.52		476.57	0.002071	2.31	174.97	89.00	0.20
Reach-1	1422	50yr	418.00	471.64	478.74		478.76	0.000485	1.48	417.13	128.04	0.10
Reach-1	1422	100yr	477.00	471.64	480.20		480.21	0.000214	1.13	619.10	149.19	0.07
Reach-1	1422	500yr	652.00	471.64	481.65		481.66	0.000168	1.12	851.24	170.89	0.06
Reach-1	1284	10yr	271.00	472.20	476.44		476.45	0.000472	1.02	324.24	137.13	0.09
Reach-1	1284	50yr	418.00	472.20	478.72		478.73	0.000139	0.76	712.52	200.73	0.06
Reach-1	1284	100yr	477.00	472.20	480.19		480.20	0.000067	0.61	1036.24	238.99	0.04
Reach-1	1284	500yr	652.00	472.20	481.64		481.65	0.000054	0.62	1407.56	272.11	0.04
Reach-1	1202	10yr	269.00	469.60	476.38	472.78	476.41	0.000407	1.51	211.29	165.51	0.11
Reach-1	1202	50yr	375.00	469.60	478.69	473.25	478.71	0.000190	1.31	329.12	253.51	0.08
Reach-1	1202	100yr	431.00	469.60	480.16	473.46	480.18	0.000128	1.20	404.43	288.13	0.07
Reach-1	1202	500yr	548.00	469.60	481.62	473.87	481.64	0.000119	1.28	478.42	316.31	0.07
Reach-1	1119.5		Culvert									
Reach-1	1076	10yr	269.00	469.20	472.81	472.81	474.61	0.023811	10.75	25.02	82.43	1.00
Reach-1	1076	50yr	375.00	469.20	473.70	473.70	475.94	0.022081	12.00	31.24	120.98	1.00
Reach-1	1076	100yr	431.00	469.20	474.14	474.14	476.60	0.021346	12.56	34.31	138.88	1.00
Reach-1	1076	500yr	548.00	469.20	474.90	474.90	475.08	0.002560	4.79	190.24	165.71	0.35
Reach-1	1026	10yr	269.00	468.01	470.55		470.84	0.008148	4.61	67.07	40.86	0.54

HEC-RAS Plan: PrePro River: RIVER-1 Reach: Reach-1 (Continued)

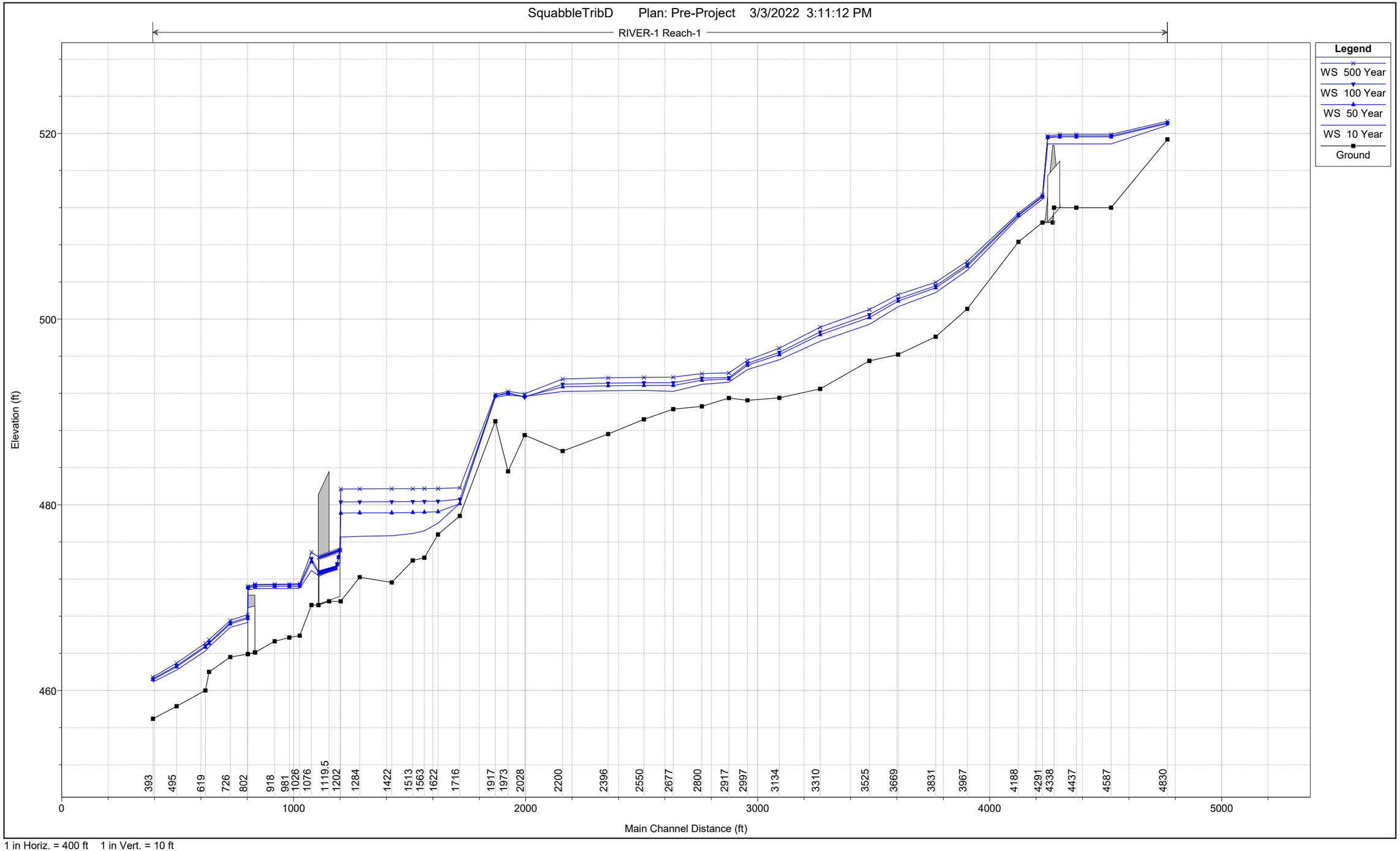
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1026	50yr	375.00	468.01	471.06		471.40	0.007356	5.02	89.94	49.60	0.53
Reach-1	1026	100yr	431.00	468.01	471.28		471.65	0.007386	5.29	102.34	60.78	0.54
Reach-1	1026	500yr	548.00	468.01	471.77		472.13	0.006299	5.40	135.07	74.70	0.51
Reach-1	981	10yr	269.00	466.62	470.21		470.53	0.006361	5.10	69.91	40.24	0.50
Reach-1	981	50yr	375.00	466.62	470.72		471.09	0.006509	5.69	92.99	51.58	0.52
Reach-1	981	100yr	431.00	466.62	470.96		471.34	0.006384	5.87	106.17	56.75	0.52
Reach-1	981	500yr	548.00	466.62	471.45		471.85	0.006103	6.20	137.31	72.90	0.52
Reach-1	918	10yr	269.00	466.33	468.92	468.92	469.74	0.028085	7.33	38.32	25.93	0.96
Reach-1	918	50yr	375.00	466.33	469.37	469.37	470.32	0.024711	7.97	51.00	30.52	0.93
Reach-1	918	100yr	431.00	466.33	469.58	469.58	470.59	0.023794	8.29	57.53	33.49	0.93
Reach-1	918	500yr	548.00	466.33	469.89	469.89	471.09	0.024617	9.12	68.90	39.29	0.96
Reach-1	833	10yr	272.00	464.91	466.89	466.65	467.31	0.027049	5.35	53.41	38.55	0.72
Reach-1	833	50yr	381.00	464.91	467.47	466.98	467.87	0.017667	5.26	77.05	41.93	0.61
Reach-1	833	100yr	435.00	464.91	467.71	467.12	468.11	0.015799	5.31	87.02	42.81	0.59
Reach-1	833	500yr	551.00	464.91	468.13	467.42	468.57	0.013973	5.53	105.25	44.49	0.57
Reach-1	817.5		Culvert									
Reach-1	802	10yr	272.00	464.24	467.04	465.67	467.13	0.004201	2.47	110.21	61.19	0.28
Reach-1	802	50yr	381.00	464.24	467.48	465.93	467.61	0.004704	2.93	130.42	63.80	0.31
Reach-1	802	100yr	435.00	464.24	467.66	466.05	467.81	0.004994	3.14	138.70	64.90	0.32
Reach-1	802	500yr	551.00	464.24	467.97	466.29	468.17	0.005774	3.60	153.04	66.86	0.35
Reach-1	726	10yr	272.00	462.44	466.53		466.77	0.013324	4.39	78.09	54.33	0.44
Reach-1	726	50yr	381.00	462.44	466.93		467.21	0.014147	4.91	101.82	69.81	0.46
Reach-1	726	100yr	435.00	462.44	467.09		467.39	0.014472	5.12	114.62	80.77	0.47
Reach-1	726	500yr	551.00	462.44	467.40		467.73	0.014522	5.42	141.16	88.40	0.48
Reach-1	635	10yr	272.00	462.11	465.30		465.51	0.014316	4.09	82.83	61.78	0.45
Reach-1	635	50yr	381.00	462.11	465.77		465.99	0.012398	4.27	114.92	74.45	0.43
Reach-1	635	100yr	435.00	462.11	465.96		466.18	0.011988	4.37	129.07	78.40	0.43
Reach-1	635	500yr	551.00	462.11	466.31		466.54	0.011437	4.57	157.45	85.54	0.43
Reach-1	619	10yr	272.00	461.54	464.89	464.10	465.25	0.019001	5.02	63.01	41.89	0.53
Reach-1	619	50yr	381.00	461.54	465.31	464.70	465.74	0.020157	5.67	83.70	56.89	0.56

HEC-RAS Plan: PrePro River: RIVER-1 Reach: Reach-1 (Continued)

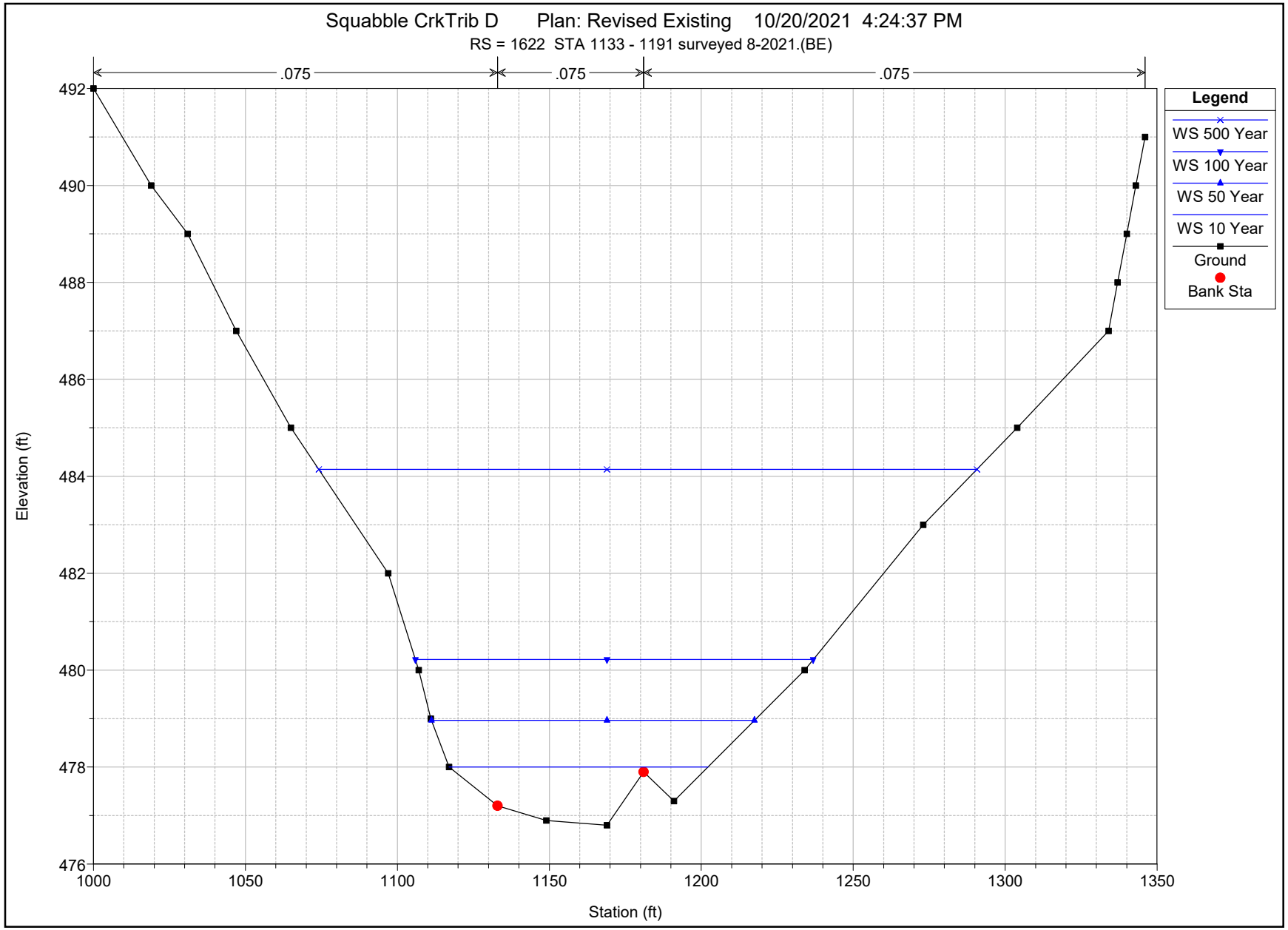
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	619	100yr	435.00	461.54	465.47	464.86	465.93	0.020659	5.93	93.35	62.12	0.57
Reach-1	619	500yr	551.00	461.54	465.39	465.39	466.20	0.037367	7.85	88.45	59.65	0.76
Reach-1	495	10yr	369.00	459.66	461.52	461.52	462.17	0.085097	6.45	57.34	51.90	0.99
Reach-1	495	50yr	524.00	459.66	461.88	461.88	462.67	0.075528	7.14	74.31	56.05	0.98
Reach-1	495	100yr	594.00	459.66	462.03	462.03	462.88	0.072303	7.40	81.84	59.03	0.97
Reach-1	495	500yr	749.00	459.66	462.90	462.34	463.46	0.029453	6.13	126.39	69.80	0.66
Reach-1	400		Culvert									
Reach-1	393	10yr	369.00	458.16	460.96	460.96	461.66	0.054951	7.33	58.69	41.27	0.87
Reach-1	393	50yr	524.00	458.16	461.36	461.36	462.20	0.053649	8.09	75.67	43.86	0.88
Reach-1	393	100yr	594.00	458.16	461.51	461.51	462.43	0.054301	8.44	82.25	44.85	0.89
Reach-1	393	500yr	749.00	458.16	461.85	461.85	462.87	0.052576	8.97	97.89	47.23	0.90

SquabbleTribD Plan: Pre-Project 3/3/2022 3:11:12 PM

RIVER-1 Reach-1



1 in Horiz. = 400 ft 1 in Vert. = 10 ft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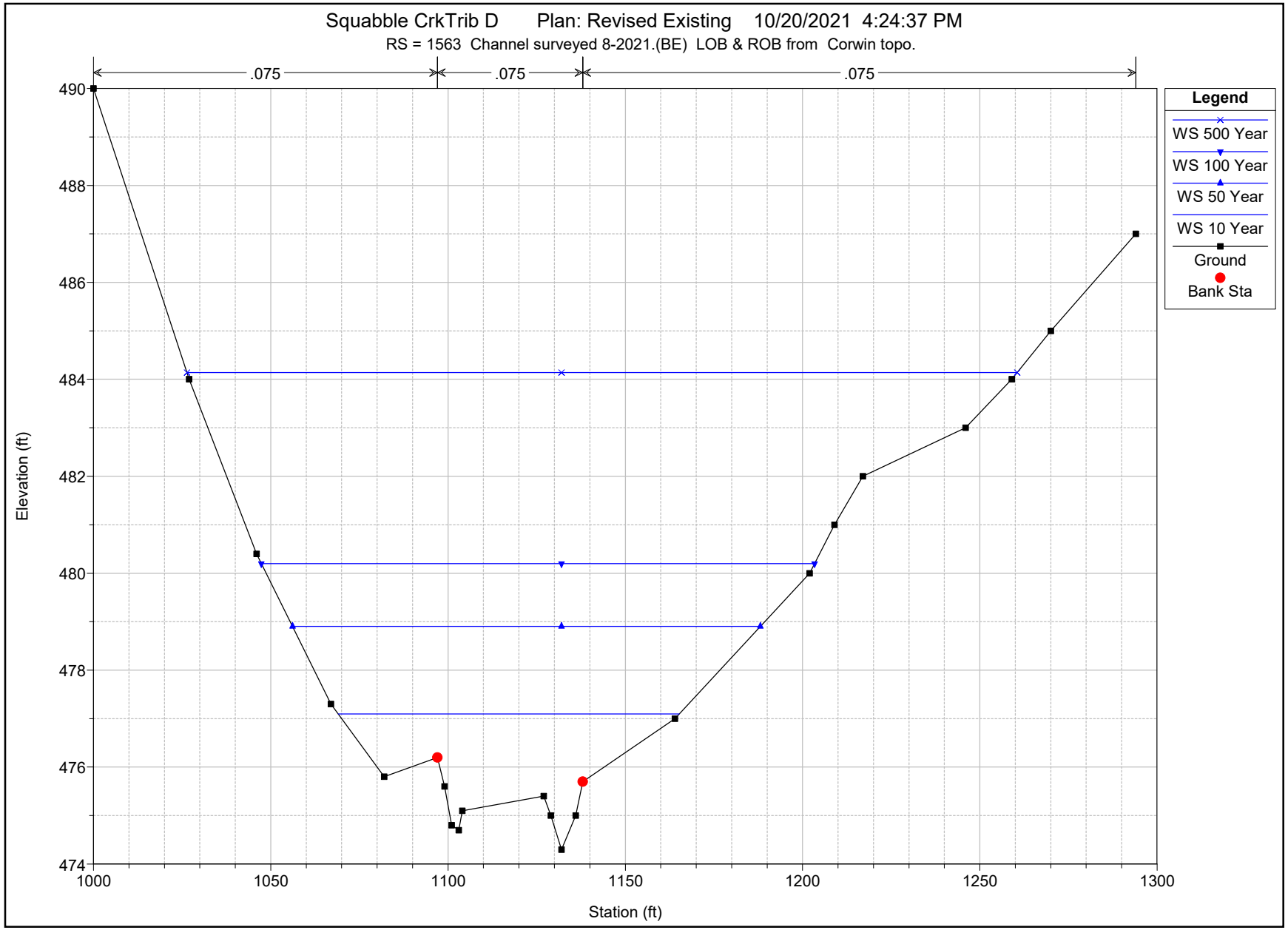
.075
.075
.075
Legend
WS 500 Year
WS 100 Year
WS 50 Year
WS 10 Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
492
490
488
486
484
482
480
478
476
1000
1050
1100
1150
1200
1250
1300
1350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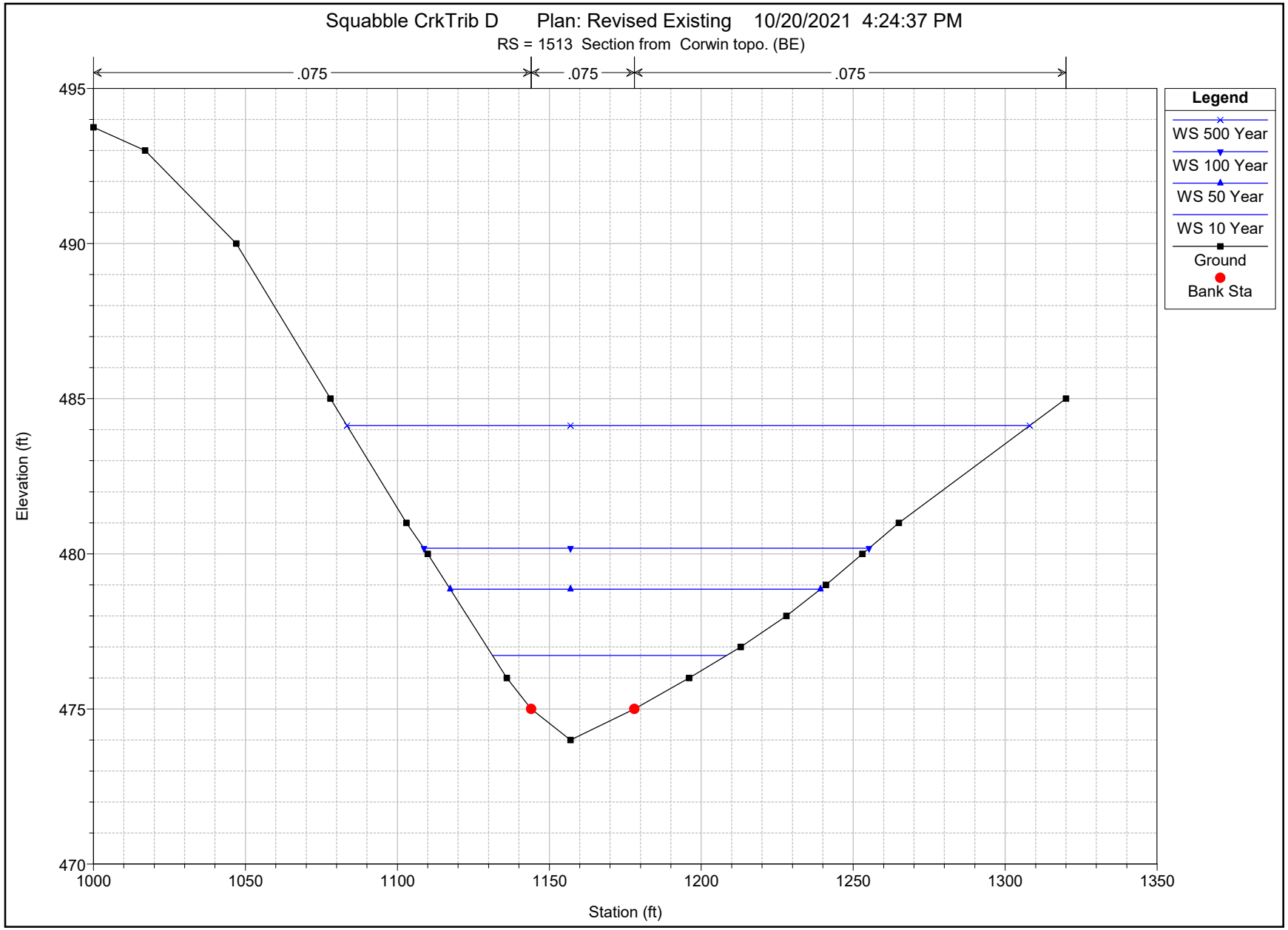
.075
.075
.075
Legend
WS 500 Year
WS 100 Year
WS 50 Year
WS 10 Year
Ground
Bank Sta
Elevation (ft)
490
488
486
484
482
480
478
476
474
1000
1050
1100
1150
1200
1250
1300
Station (ft)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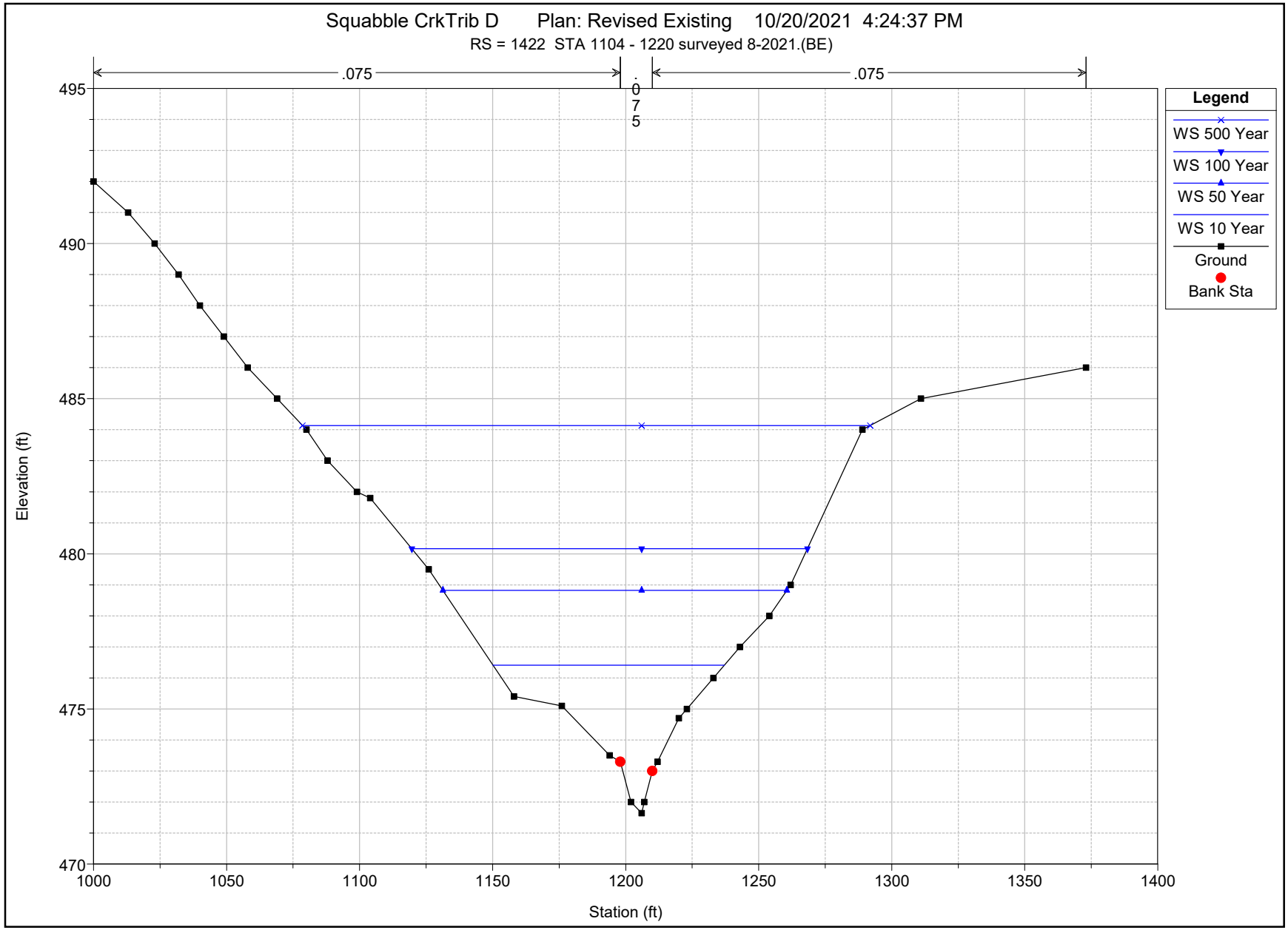
.075
.075
.075
Legend
WS 500 Year
WS 100 Year
WS 50 Year
WS 10 Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
495
490
485
480
475
470
1000
1050
1100
1150
1200
1250
1300
1350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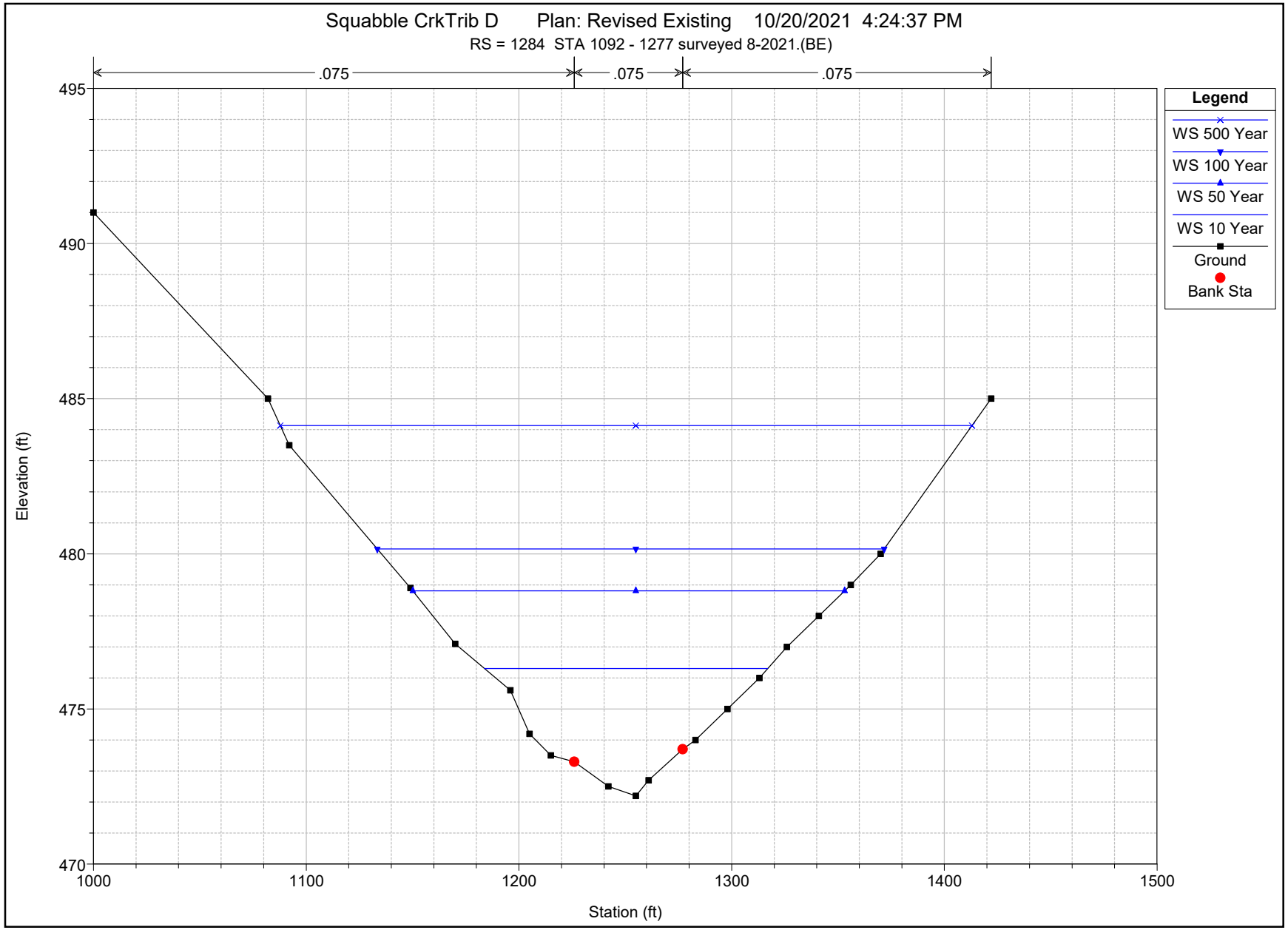
.075
.075
.075
Legend
WS 500 Year
WS 100 Year
WS 50 Year
WS 10 Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
495
490
485
480
475
470
1000
1050
1100
1150
1200
1250
1300
1350
1400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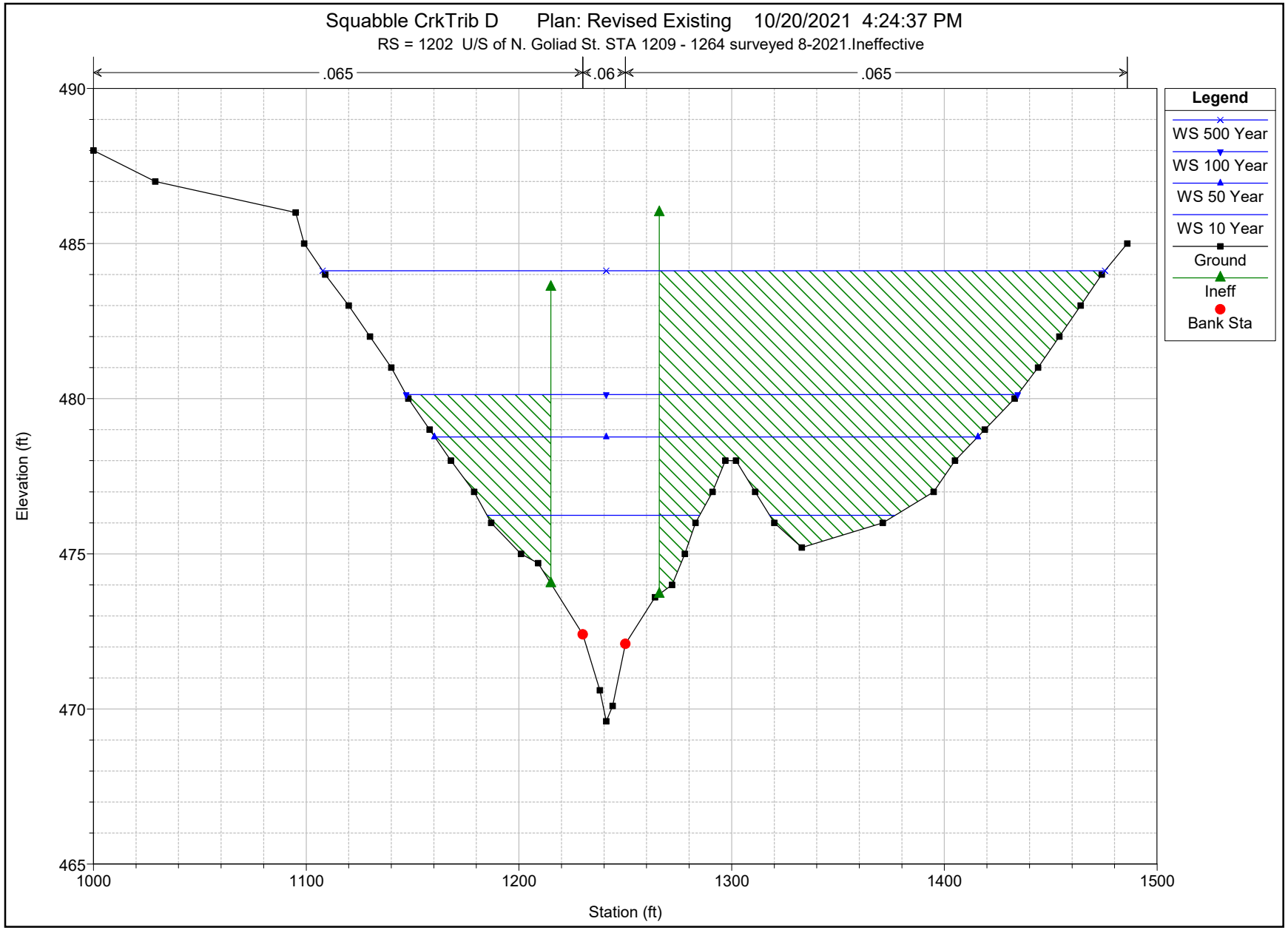
.075
.075
.075
Legend
WS 500 Year
WS 100 Year
WS 50 Year
WS 10 Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
495
490
485
480
475
470
1000
1100
1200
1300
1400
1500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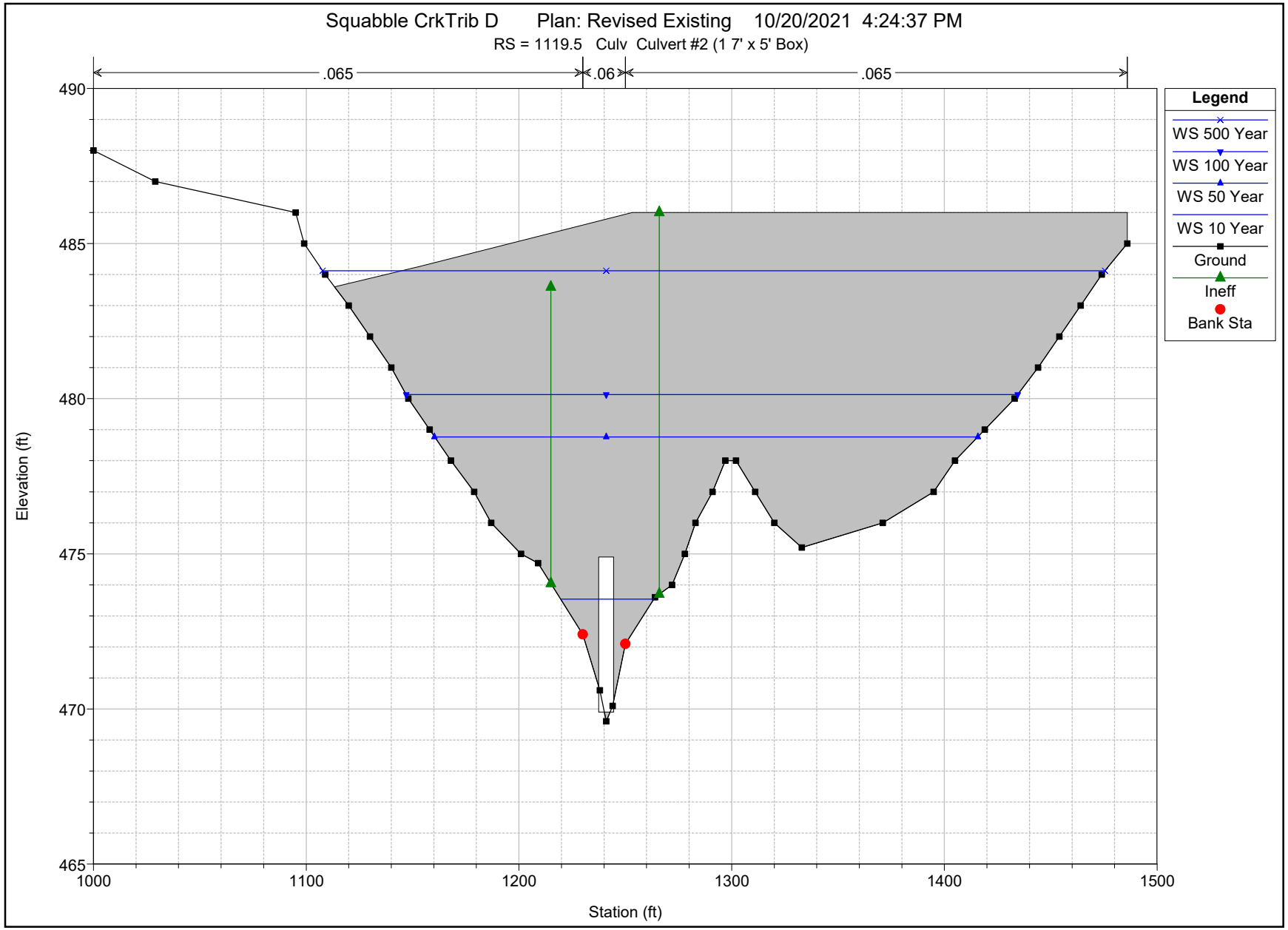
.065
.06
.065
Legend
WS 500 Year
WS 100 Year
WS 50 Year
WS 10 Year
Ground
Ineff
Bank Sta
Elevation (ft)
490
485
480
475
470
465
1000
1100
1200
1300
1400
1500
Station (ft)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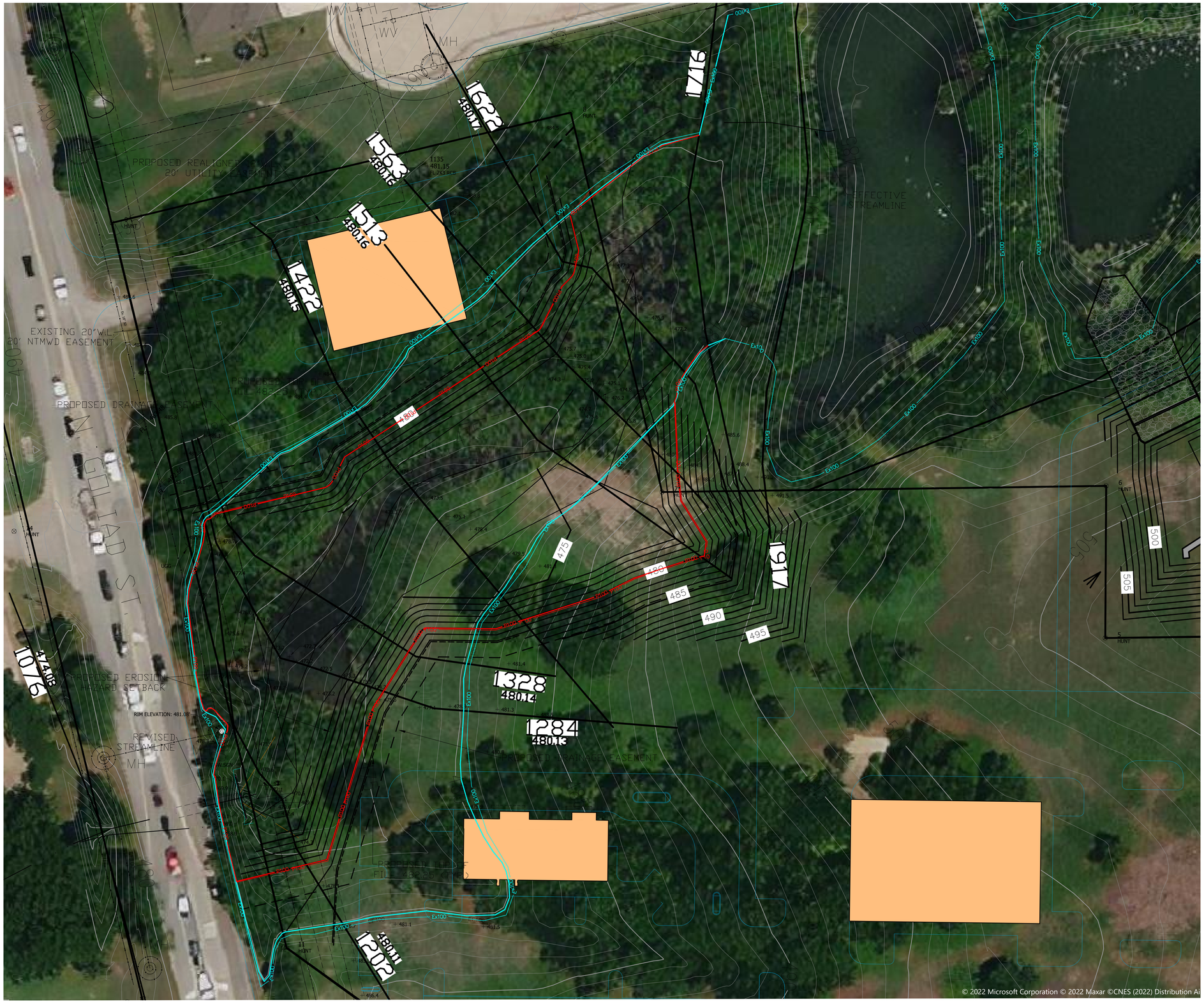
RS = 1119.5 Culv Culvert #2 (1 7' x 5' Box)
.065
.06
.065
490
485
480
475
470
465
Elevation (ft)
1000
1100
1200
1300
1400
1500
Station (ft)
Legend
WS 500 Year
WS 100 Year
WS 50 Year
WS 10 Year
Ground
Ineff
Bank Sta



N

GRAPHIC SCALE

30 0 15 30 60

(IN FEET)
1 inch = 30 ft.

LEGEND

631	EXISTING CONTOUR
	INEFFECTIVE FLOW LIMIT
EF100	EFFECTIVE 100-YEAR FLOODPLAIN
P100	PROPOSED 100-YEAR FLOODPLAIN
P100	PROPOSED ULT 100YR FLOODPLAIN

BENCHMARKS

BM#1:
CITY OF ROCKWALL MONUMENT 14
NAVD88
ELEV.=497.13

BANNISTER ENGINEERING
240 N. Mitchell Road | Mansfield, TX 76063 | 817.842.2094 | 817.842.2095 fax
REGISTRATION # F-10599 (TEXAS)

STONE CREEK RETAIL

ROCKWALL, TEXAS

PROPOSED HYDRAULIC WORK MAP

No.	Date	Revision Description

PROJECT NO.: 262-21-001

STATE OF TEXAS
MICHAEL J. MOORE
128498
LICENSED PROFESSIONAL ENGINEER

3/15/2022

SHEET NUMBER

16

File: B:\Clients\262 (DuWest)\262-21-001 (Stone Creek Retail - Rockwall)\Flood Study\Hydraulic Work Map 262-21-001.dwg || Date Plotted: 3/15/2022 3:26 PM || Plotted By: mmoore

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	4830	10 Year	282.80	519.35	520.87	520.87	521.29	0.025442	5.22	54.13	65.25	1.01
Reach-1	4830	50 Year	380.30	519.35	521.06	521.06	521.56	0.024427	5.65	67.39	72.18	1.02
Reach-1	4830	100 Year	428.80	519.35	521.15	521.15	521.68	0.023297	5.84	73.74	75.26	1.01
Reach-1	4830	500 Year	532.40	519.35	521.32	521.32	521.92	0.021548	6.21	87.15	81.38	0.99
Reach-1	4587	10 Year	282.80	513.00	518.86		518.87	0.000044	0.69	430.47	117.28	0.06
Reach-1	4587	50 Year	380.30	513.00	519.62		519.63	0.000047	0.78	525.32	135.41	0.06
Reach-1	4587	100 Year	428.80	513.00	519.73		519.74	0.000055	0.86	540.77	138.23	0.06
Reach-1	4587	500 Year	532.40	513.00	519.89		519.91	0.000076	1.03	563.88	142.35	0.08
Reach-1	4437	10 Year	221.00	513.00	518.87	513.47	518.87	0.000005	0.24	926.41	201.01	0.02
Reach-1	4437	50 Year	335.20	513.00	519.62	513.61	519.62	0.000008	0.31	1083.55	217.60	0.02
Reach-1	4437	100 Year	390.40	513.00	519.73	513.68	519.73	0.000010	0.35	1108.31	220.27	0.03
Reach-1	4437	500 Year	493.30	513.00	519.90	513.80	519.90	0.000014	0.43	1145.06	224.17	0.03
Reach-1	4338		Culvert									
Reach-1	4291	10 Year	272.80	510.40	512.89	512.89	513.25	0.028885	5.18	66.91	100.17	0.83
Reach-1	4291	50 Year	409.00	510.40	513.15	513.15	513.54	0.028737	5.59	95.01	113.44	0.84
Reach-1	4291	100 Year	479.10	510.40	513.25	513.25	513.66	0.029747	5.86	105.98	116.21	0.87
Reach-1	4291	500 Year	623.10	510.40	513.41	513.41	513.90	0.032533	6.42	124.98	120.85	0.92
Reach-1	4188	10 Year	272.80	508.32	510.93	510.68	511.05	0.017514	3.45	106.19	127.12	0.47
Reach-1	4188	50 Year	409.00	508.32	511.15	510.83	511.31	0.019117	3.91	134.76	130.67	0.50
Reach-1	4188	100 Year	479.10	508.32	511.24	510.92	511.42	0.020174	4.15	146.88	132.32	0.52
Reach-1	4188	500 Year	623.10	508.32	511.41	511.06	511.63	0.021960	4.57	169.63	135.38	0.55
Reach-1	3967	10 Year	272.80	501.10	505.24	505.24	505.74	0.036683	6.03	55.71	58.76	0.68
Reach-1	3967	50 Year	409.00	501.10	505.69	505.59	506.16	0.031380	6.25	85.16	73.06	0.65
Reach-1	3967	100 Year	479.10	501.10	505.89	505.74	506.34	0.028808	6.26	100.58	79.53	0.63
Reach-1	3967	500 Year	623.10	501.10	506.23		506.67	0.025430	6.31	128.62	85.54	0.60
Reach-1	3831	10 Year	272.80	498.10	502.86		503.01	0.011138	3.28	88.38	45.66	0.38
Reach-1	3831	50 Year	409.00	498.10	503.37		503.57	0.012865	3.81	114.80	55.84	0.41
Reach-1	3831	100 Year	479.10	498.10	503.58		503.81	0.013304	4.07	126.49	58.50	0.43
Reach-1	3831	500 Year	623.10	498.10	503.96		504.24	0.013766	4.51	150.16	63.54	0.44
Reach-1	3669	10 Year	272.80	496.18	501.34		501.49	0.009474	3.50	97.14	66.90	0.36

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	3669	50 Year	409.00	496.18	501.93		502.08	0.008351	3.54	138.10	71.48	0.34
Reach-1	3669	100 Year	479.10	496.18	502.19		502.34	0.007954	3.61	156.49	74.02	0.34
Reach-1	3669	500 Year	623.10	496.18	502.64		502.81	0.007470	3.79	191.09	78.93	0.34
Reach-1	3525	10 Year	272.80	495.50	499.43		499.78	0.021679	4.75	58.19	30.05	0.56
Reach-1	3525	50 Year	409.00	495.50	500.17		500.57	0.019240	5.14	84.12	40.85	0.54
Reach-1	3525	100 Year	479.10	495.50	500.48		500.89	0.018499	5.30	97.52	46.09	0.54
Reach-1	3525	500 Year	623.10	495.50	501.03		501.46	0.017060	5.51	125.54	55.36	0.53
Reach-1	3310	10 Year	272.80	492.48	497.61		497.71	0.005232	2.53	107.87	42.71	0.28
Reach-1	3310	50 Year	409.00	492.48	498.32		498.46	0.005731	2.91	140.53	49.72	0.30
Reach-1	3310	100 Year	479.10	492.48	498.62		498.77	0.005955	3.09	155.64	53.10	0.31
Reach-1	3310	500 Year	623.10	492.48	499.13		499.31	0.006414	3.42	184.32	59.50	0.33
Reach-1	3134	10 Year	272.80	491.51	495.61		495.98	0.023895	4.98	58.90	36.49	0.58
Reach-1	3134	50 Year	409.00	491.51	496.17		496.61	0.024250	5.57	81.76	45.51	0.60
Reach-1	3134	100 Year	479.10	491.51	496.42		496.88	0.024163	5.79	93.28	49.58	0.60
Reach-1	3134	500 Year	623.10	491.51	496.87		497.37	0.023271	6.08	117.44	57.20	0.60
Reach-1	2997	10 Year	303.70	491.25	494.56		494.64	0.004711	2.37	138.05	74.88	0.27
Reach-1	2997	50 Year	452.40	491.25	495.04		495.14	0.005251	2.81	174.98	81.53	0.29
Reach-1	2997	100 Year	530.10	491.25	495.24		495.37	0.005483	3.01	192.10	84.62	0.30
Reach-1	2997	500 Year	691.20	491.25	495.56		495.72	0.006290	3.44	220.04	89.43	0.33
Reach-1	2917	10 Year	303.70	491.50	493.20	493.20	493.72	0.062827	6.20	55.28	55.23	0.91
Reach-1	2917	50 Year	452.40	491.50	493.55	493.55	494.16	0.058026	6.86	75.79	63.63	0.90
Reach-1	2917	100 Year	530.10	491.50	493.70	493.70	494.36	0.056110	7.14	86.06	67.44	0.90
Reach-1	2917	500 Year	691.20	491.50	494.20		494.75	0.036216	6.67	122.54	79.52	0.75
Reach-1	2800	10 Year	303.70	490.60	492.98		493.00	0.001201	1.24	250.40	138.69	0.16
Reach-1	2800	50 Year	452.40	490.60	493.42		493.45	0.001325	1.49	312.59	144.40	0.17
Reach-1	2800	100 Year	530.10	490.60	493.65		493.69	0.001313	1.58	347.06	147.47	0.17
Reach-1	2800	500 Year	691.20	490.60	494.14		494.18	0.001236	1.72	419.93	153.76	0.17
Reach-1	2677	10 Year	303.70	490.30	492.21	492.15	492.55	0.032671	5.55	73.29	86.01	0.78
Reach-1	2677	50 Year	452.40	490.30	492.85		493.05	0.013683	4.51	135.96	110.28	0.54
Reach-1	2677	100 Year	530.10	490.30	493.15		493.33	0.009900	4.19	171.01	119.22	0.47
Reach-1	2677	500 Year	691.20	490.30	493.74		493.88	0.005963	3.74	244.98	131.60	0.37

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	2550	10 Year	303.70	489.63	492.32		492.34	0.000270	1.16	303.29	144.05	0.13
Reach-1	2550	50 Year	452.40	489.63	492.86		492.89	0.000305	1.39	384.05	155.11	0.14
Reach-1	2550	100 Year	530.10	489.63	493.14		493.17	0.000306	1.48	429.02	161.23	0.14
Reach-1	2550	500 Year	691.20	489.63	493.72		493.75	0.000297	1.61	525.05	174.12	0.14
Reach-1	2396	10 Year	270.70	489.63	492.28		492.30	0.000248	1.05	270.77	124.71	0.12
Reach-1	2396	50 Year	416.40	489.63	492.81		492.84	0.000306	1.31	339.70	134.32	0.14
Reach-1	2396	100 Year	484.70	489.63	493.10		493.13	0.000303	1.38	382.92	227.01	0.14
Reach-1	2396	500 Year	628.80	489.63	493.68		493.71	0.000268	1.45	517.24	237.64	0.13
Reach-1	2200	10 Year	270.70	489.63	492.19		492.23	0.000539	1.49	183.10	82.84	0.17
Reach-1	2200	50 Year	416.40	489.63	492.70		492.75	0.000670	1.87	225.78	86.47	0.20
Reach-1	2200	100 Year	484.70	489.63	492.98		493.04	0.000663	1.97	250.48	88.51	0.20
Reach-1	2200	500 Year	628.80	489.63	493.56		493.63	0.000616	2.11	326.36	240.58	0.20
Reach-1	2028	10 Year	270.70	487.50	491.66		491.96	0.013208	4.35	62.34	28.40	0.52
Reach-1	2028	50 Year	416.40	487.50	491.65		492.35	0.031961	6.74	61.86	28.33	0.80
Reach-1	2028	100 Year	484.70	487.50	491.58	491.54	492.60	0.047555	8.09	59.92	28.06	0.98
Reach-1	2028	500 Year	628.80	487.50	491.96	491.96	493.18	0.049168	8.89	70.78	29.53	1.01
Reach-1	1973	10 Year	270.70	488.58	491.81		491.81	0.000014	0.30	908.58	290.49	0.03
Reach-1	1973	50 Year	416.40	488.58	491.99		491.99	0.000028	0.44	961.51	291.76	0.04
Reach-1	1973	100 Year	484.70	488.58	492.07		492.08	0.000034	0.50	986.86	292.53	0.05
Reach-1	1973	500 Year	628.80	488.58	492.21		492.22	0.000051	0.62	1027.78	293.77	0.06
Reach-1	1917	10 Year	270.70	489.00	491.58	491.58	491.78	0.026535	5.28	98.52	218.46	0.74
Reach-1	1917	50 Year	416.40	489.00	491.72	491.72	491.96	0.029801	5.93	131.47	239.74	0.80
Reach-1	1917	100 Year	484.70	489.00	491.74	491.74	492.04	0.037775	6.71	134.85	241.82	0.90
Reach-1	1917	500 Year	628.80	489.00	491.90	491.90	492.18	0.033371	6.69	177.20	287.74	0.86
Reach-1	1716	10 Year	270.70	478.80	480.16		480.22	0.008591	2.05	132.33	128.70	0.35
Reach-1	1716	50 Year	416.40	478.80	480.13		480.29	0.022367	3.25	128.49	127.81	0.56
Reach-1	1716	100 Year	484.70	478.80	480.60		480.70	0.008562	2.57	191.46	141.73	0.37
Reach-1	1716	500 Year	628.80	478.80	481.82		481.86	0.001727	1.72	385.73	173.75	0.18
Reach-1	1622	10 Year	279.70	476.80	478.01	478.01	478.37	0.069060	5.10	60.97	82.65	0.91
Reach-1	1622	50 Year	391.30	476.80	479.19		479.28	0.006118	2.58	165.95	94.63	0.31

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1622	100 Year	435.70	476.80	480.35		480.39	0.001467	1.68	281.25	104.78	0.16
Reach-1	1622	500 Year	551.50	476.80	481.74		481.77	0.000617	1.38	435.93	117.93	0.11
Reach-1	1563	10 Year	279.70	474.30	476.96		477.08	0.010076	2.93	113.27	99.90	0.38
Reach-1	1563	50 Year	391.30	474.30	479.16		479.18	0.000602	1.22	359.69	122.77	0.11
Reach-1	1563	100 Year	435.70	474.30	480.34		480.35	0.000251	0.93	511.17	134.75	0.07
Reach-1	1563	500 Year	551.50	474.30	481.74		481.75	0.000147	0.84	709.86	150.11	0.06
Reach-1	1513	10 Year	279.70	474.00	476.77		476.81	0.003089	1.90	199.53	162.82	0.22
Reach-1	1513	50 Year	391.30	474.00	479.16		479.17	0.000181	0.74	614.52	184.38	0.06
Reach-1	1513	100 Year	435.70	474.00	480.34		480.35	0.000084	0.59	838.79	195.38	0.04
Reach-1	1513	500 Year	551.50	474.00	481.74		481.74	0.000054	0.54	1121.03	208.44	0.04
Reach-1	1422	10 Year	279.70	471.64	476.69		476.70	0.000494	1.16	322.17	127.06	0.10
Reach-1	1422	50 Year	391.30	471.64	479.15		479.15	0.000102	0.71	659.36	147.47	0.05
Reach-1	1422	100 Year	435.70	471.64	480.33		480.34	0.000060	0.60	840.32	157.33	0.04
Reach-1	1422	500 Year	551.50	471.64	481.73		481.74	0.000045	0.58	1068.36	168.95	0.03
Reach-1	1328	10 Year	279.70	471.90	476.61		476.64	0.000994	1.64	232.05	99.56	0.14
Reach-1	1328	50 Year	391.30	471.90	479.13		479.14	0.000193	0.98	539.53	144.59	0.07
Reach-1	1328	100 Year	435.70	471.90	480.33		480.33	0.000101	0.79	720.97	157.10	0.05
Reach-1	1328	500 Year	551.50	471.90	481.73		481.73	0.000070	0.73	948.81	168.30	0.04
Reach-1	1284	10 Year	279.70	472.20	476.59		476.61	0.000483	1.06	292.84	111.49	0.10
Reach-1	1284	50 Year	391.30	472.20	479.13		479.13	0.000113	0.72	634.58	158.94	0.05
Reach-1	1284	100 Year	435.70	472.20	480.32		480.33	0.000065	0.61	837.53	178.88	0.04
Reach-1	1284	500 Year	551.50	472.20	481.72		481.73	0.000047	0.58	1096.14	190.24	0.03
Reach-1	1202	10 Year	279.70	469.60	476.54	472.82	476.57	0.000392	1.51	219.14	149.81	0.11
Reach-1	1202	50 Year	391.30	469.60	479.10	473.32	479.12	0.000170	1.28	349.48	224.45	0.08
Reach-1	1202	100 Year	435.70	469.60	480.30	473.47	480.32	0.000124	1.20	410.75	245.08	0.07
Reach-1	1202	500 Year	551.50	469.60	481.70	473.88	481.72	0.000118	1.28	482.06	256.49	0.07
Reach-1	1119.5		Culvert									
Reach-1	1076	10 Year	282.00	469.20	472.93	472.93	474.78	0.023479	10.91	25.85	87.56	1.00
Reach-1	1076	50 Year	395.80	469.20	473.87	473.87	476.19	0.021797	12.22	32.39	128.13	1.00
Reach-1	1076	100 Year	440.80	469.20	474.20	474.20	476.71	0.021461	12.70	34.72	140.97	1.00

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1076	500 Year	555.70	469.20	474.90	474.90	475.09	0.002633	4.85	190.24	165.71	0.36
Reach-1	1026	10 Year	282.00	465.90	471.01		471.06	0.000698	1.99	181.74	85.91	0.17
Reach-1	1026	50 Year	395.80	465.90	471.24		471.32	0.001080	2.56	202.38	93.46	0.22
Reach-1	1026	100 Year	440.80	465.90	471.40		471.49	0.001136	2.69	217.83	98.73	0.22
Reach-1	1026	500 Year	555.70	465.90	471.51		471.65	0.001612	3.26	229.14	102.43	0.27
Reach-1	981	10 Year	282.00	465.70	470.99		471.03	0.000553	1.85	200.66	97.08	0.16
Reach-1	981	50 Year	395.80	465.70	471.20		471.28	0.000872	2.40	222.73	105.91	0.20
Reach-1	981	100 Year	440.80	465.70	471.36		471.44	0.000921	2.52	240.09	112.38	0.20
Reach-1	981	500 Year	555.70	465.70	471.46		471.58	0.001331	3.07	251.04	116.27	0.25
Reach-1	918	10 Year	282.00	465.30	470.98		471.00	0.000248	1.24	310.87	138.11	0.10
Reach-1	918	50 Year	395.80	465.30	471.20		471.23	0.000390	1.61	341.55	145.46	0.13
Reach-1	918	100 Year	440.80	465.30	471.36		471.39	0.000411	1.69	365.21	150.88	0.14
Reach-1	918	500 Year	555.70	465.30	471.45		471.50	0.000595	2.06	379.59	154.08	0.17
Reach-1	833	10 Year	282.00	464.10	470.97	468.82	470.98	0.000154	1.01	445.86	201.91	0.07
Reach-1	833	50 Year	395.80	464.10	471.18	469.99	471.19	0.000276	1.38	489.21	211.73	0.09
Reach-1	833	100 Year	440.80	464.10	471.34	470.27	471.35	0.000286	1.43	523.46	217.95	0.09
Reach-1	833	500 Year	555.70	464.10	471.43	470.27	471.45	0.000414	1.73	542.53	221.34	0.11
Reach-1	817.5		Culvert									
Reach-1	802	10 Year	282.00	463.92	467.34	466.81	467.44	0.005690	3.52	134.62	107.33	0.34
Reach-1	802	50 Year	395.80	463.92	467.74	466.81	467.85	0.005549	3.76	182.16	128.59	0.34
Reach-1	802	100 Year	440.80	463.92	467.88	466.82	467.99	0.005497	3.83	200.36	135.85	0.35
Reach-1	802	500 Year	555.70	463.92	468.18	467.06	468.29	0.005376	3.99	243.25	146.09	0.35
Reach-1	726	10 Year	282.00	463.60	466.81		466.93	0.008483	2.84	107.79	76.39	0.34
Reach-1	726	50 Year	395.80	463.60	467.17		467.32	0.008976	3.24	138.43	91.08	0.36
Reach-1	726	100 Year	440.80	463.60	467.30		467.46	0.009085	3.37	150.37	96.20	0.37
Reach-1	726	500 Year	555.70	463.60	467.56		467.75	0.009732	3.71	176.62	106.60	0.38
Reach-1	635	10 Year	282.00	462.00	464.69	464.69	465.28	0.055775	6.34	49.72	48.27	0.84
Reach-1	635	50 Year	395.80	462.00	465.06	465.06	465.67	0.048502	6.71	69.95	61.60	0.81
Reach-1	635	100 Year	440.80	462.00	465.18	465.18	465.81	0.047404	6.87	77.23	65.74	0.81
Reach-1	635	500 Year	555.70	462.00	465.48	465.45	466.10	0.041128	6.97	99.15	76.87	0.77

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	619	10 Year	282.00	460.00	464.25		464.55	0.018752	4.45	64.29	35.08	0.50
Reach-1	619	50 Year	395.80	460.00	464.66		465.07	0.020718	5.19	82.06	50.78	0.54
Reach-1	619	100 Year	440.80	460.00	464.80		465.24	0.021169	5.42	89.57	56.11	0.55
Reach-1	619	500 Year	555.70	460.00	465.11		465.61	0.022059	5.90	108.69	67.81	0.57
Reach-1	495	10 Year	282.00	458.30	462.20		462.37	0.016112	3.28	86.59	60.43	0.45
Reach-1	495	50 Year	395.80	458.30	462.56		462.77	0.015970	3.72	111.07	76.60	0.46
Reach-1	495	100 Year	440.80	458.30	462.67		462.90	0.016008	3.87	120.53	82.00	0.47
Reach-1	495	500 Year	555.70	458.30	462.94		463.20	0.016084	4.20	144.27	94.20	0.48
Reach-1	393	10 Year	282.00	456.95	460.91	459.87	461.07	0.010542	3.50	103.01	95.31	0.39
Reach-1	393	50 Year	395.80	456.95	461.17	460.61	461.37	0.012367	4.04	129.30	106.93	0.42
Reach-1	393	100 Year	440.80	456.95	461.26	460.74	461.48	0.012933	4.22	139.10	110.95	0.44
Reach-1	393	500 Year	555.70	456.95	461.45	460.94	461.71	0.014548	4.67	160.99	119.45	0.47

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	4830	10yr	294.00	519.35	520.89	520.89	521.32	0.025262	5.26	55.84	66.19	1.01
Reach-1	4830	50yr	392.00	519.35	521.08	521.08	521.59	0.024217	5.70	68.85	72.90	1.01
Reach-1	4830	100yr	441.00	519.35	521.17	521.17	521.71	0.022900	5.88	75.49	76.09	1.00
Reach-1	4830	500yr	544.00	519.35	521.34	521.34	521.94	0.021345	6.25	88.70	82.06	0.99
Reach-1	4587	10yr	294.00	513.00	518.52		518.53	0.000062	0.78	391.12	110.37	0.06
Reach-1	4587	50yr	392.00	513.00	519.59		519.60	0.000050	0.81	521.85	134.77	0.06
Reach-1	4587	100yr	441.00	513.00	519.73		519.74	0.000058	0.89	540.59	138.20	0.07
Reach-1	4587	500yr	544.00	513.00	519.89		519.90	0.000080	1.06	563.04	142.20	0.08
Reach-1	4437	10yr	204.00	513.00	518.52	513.44	518.52	0.000006	0.24	857.91	195.92	0.02
Reach-1	4437	50yr	324.00	513.00	519.59	513.60	519.59	0.000007	0.30	1078.05	217.00	0.02
Reach-1	4437	100yr	378.00	513.00	519.73	513.67	519.73	0.000009	0.34	1108.10	220.24	0.03
Reach-1	4437	500yr	481.00	513.00	519.89	513.78	519.89	0.000013	0.42	1143.84	224.05	0.03
Reach-1	4338		Culvert									
Reach-1	4291	10yr	204.00	510.40	512.70	512.70	513.05	0.029995	5.00	48.89	80.77	0.83
Reach-1	4291	50yr	324.00	510.40	513.01	513.01	513.37	0.028699	5.32	78.82	109.22	0.83
Reach-1	4291	100yr	378.00	510.40	513.11	513.11	513.48	0.028395	5.47	89.70	112.07	0.84
Reach-1	4291	500yr	481.00	510.40	513.25	513.25	513.67	0.029759	5.87	106.28	116.28	0.87
Reach-1	4188	10yr	204.00	508.32	510.82	510.58	510.91	0.014858	3.04	92.35	125.82	0.43
Reach-1	4188	50yr	324.00	508.32	511.02	510.75	511.15	0.017870	3.61	118.18	128.36	0.48
Reach-1	4188	100yr	378.00	508.32	511.11	510.81	511.25	0.018552	3.80	129.23	129.90	0.49
Reach-1	4188	500yr	481.00	508.32	511.25	510.92	511.43	0.019607	4.11	148.64	132.56	0.51
Reach-1	3967	10yr	204.00	501.10	504.78	504.65	505.36	0.052446	6.25	34.82	27.40	0.79
Reach-1	3967	50yr	324.00	501.10	505.42	505.39	505.91	0.035153	6.18	66.38	64.31	0.68
Reach-1	3967	100yr	378.00	501.10	505.59	505.53	506.07	0.032930	6.25	78.06	69.88	0.66
Reach-1	3967	500yr	481.00	501.10	505.88	505.74	506.35	0.029893	6.36	99.39	79.05	0.64
Reach-1	3831	10yr	204.00	498.10	502.49		502.61	0.010147	2.94	72.67	39.61	0.35
Reach-1	3831	50yr	324.00	498.10	503.09		503.26	0.012213	3.45	99.70	52.00	0.40
Reach-1	3831	100yr	378.00	498.10	503.29		503.47	0.012461	3.66	110.00	54.71	0.41
Reach-1	3831	500yr	481.00	498.10	503.62		503.84	0.012686	4.01	128.94	59.04	0.42
Reach-1	3669	10yr	216.00	496.18	500.99		501.14	0.009548	3.34	74.48	44.15	0.36

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	3669	50yr	326.00	496.18	501.59		501.74	0.008938	3.51	114.00	68.82	0.35
Reach-1	3669	100yr	386.00	496.18	501.84		501.99	0.008505	3.53	131.56	70.77	0.35
Reach-1	3669	500yr	505.00	496.18	502.27		502.43	0.007839	3.64	162.96	74.97	0.34
Reach-1	3525	10yr	216.00	495.50	499.07		499.38	0.022868	4.49	48.18	24.96	0.56
Reach-1	3525	50yr	326.00	495.50	499.77		500.13	0.019984	4.88	68.98	34.72	0.54
Reach-1	3525	100yr	386.00	495.50	500.08		500.46	0.019059	5.04	80.53	39.33	0.54
Reach-1	3525	500yr	505.00	495.50	500.60		501.01	0.017939	5.31	103.23	48.15	0.53
Reach-1	3310	10yr	216.00	492.48	497.18		497.27	0.005301	2.40	90.07	39.01	0.28
Reach-1	3310	50yr	326.00	492.48	497.85		497.97	0.005863	2.76	118.16	44.71	0.30
Reach-1	3310	100yr	386.00	492.48	498.15		498.28	0.006083	2.93	131.91	47.69	0.31
Reach-1	3310	500yr	505.00	492.48	498.64		498.80	0.006497	3.24	156.69	53.33	0.32
Reach-1	3134	10yr	216.00	491.51	495.66	494.61	495.89	0.012615	3.91	60.75	37.29	0.43
Reach-1	3134	50yr	326.00	491.51	496.26	495.20	496.53	0.012128	4.41	85.94	47.03	0.44
Reach-1	3134	100yr	386.00	491.51	496.48	495.47	496.78	0.012739	4.72	96.61	50.70	0.45
Reach-1	3134	500yr	505.00	491.51	496.89	495.92	497.24	0.013071	5.16	118.84	57.61	0.47
Reach-1	2997	10yr	253.00	492.00	493.78	493.08	493.96	0.015133	3.44	73.44	71.25	0.46
Reach-1	2997	50yr	378.00	492.00	494.08	493.39	494.38	0.019804	4.38	86.20	75.75	0.54
Reach-1	2997	100yr	448.00	492.00	494.40	493.56	494.71	0.017301	4.51	99.41	78.58	0.52
Reach-1	2997	500yr	589.00	492.00	494.99	493.86	495.34	0.014274	4.75	124.10	83.87	0.49
Reach-1	2957		Culvert									
Reach-1	2917	10yr	253.00	491.30	492.87	492.87	493.55	0.081943	6.60	38.35	28.83	1.01
Reach-1	2917	50yr	378.00	491.30	493.40	493.40	494.01	0.050474	6.46	63.58	69.46	0.84
Reach-1	2917	100yr	448.00	491.30	493.56	493.56	494.23	0.050717	6.84	71.38	72.73	0.85
Reach-1	2917	500yr	589.00	491.30	494.17		494.71	0.029486	6.21	101.73	88.29	0.68
Reach-1	2800	10yr	253.00	490.60	492.81		492.83	0.001120	1.13	228.17	136.59	0.15
Reach-1	2800	50yr	378.00	490.60	493.23		493.26	0.001226	1.36	285.82	141.97	0.16
Reach-1	2800	100yr	448.00	490.60	493.51		493.54	0.001131	1.41	326.83	145.68	0.16
Reach-1	2800	500yr	589.00	490.60	494.17		494.20	0.000861	1.44	425.57	154.23	0.14
Reach-1	2677	10yr	253.00	490.30	492.19		492.44	0.024087	4.73	71.65	85.29	0.67
Reach-1	2677	50yr	378.00	490.30	492.70		492.89	0.013342	4.26	120.18	104.70	0.52

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	2677	100yr	448.00	490.30	493.11		493.24	0.007751	3.66	165.65	118.27	0.41
Reach-1	2677	500yr	589.00	490.30	493.93		494.01	0.003276	2.88	269.90	135.52	0.28
Reach-1	2550	10yr	253.00	489.63	492.27		492.28	0.000202	0.98	295.66	142.95	0.11
Reach-1	2550	50yr	378.00	489.63	492.72		492.74	0.000250	1.22	362.82	152.28	0.12
Reach-1	2550	100yr	448.00	489.63	493.10		493.12	0.000228	1.27	422.47	160.31	0.12
Reach-1	2550	500yr	589.00	489.63	493.91		493.94	0.000181	1.30	559.62	178.53	0.11
Reach-1	2396	10yr	256.00	489.63	492.23		492.25	0.000237	1.02	264.49	123.79	0.12
Reach-1	2396	50yr	379.00	489.63	492.68		492.70	0.000296	1.26	321.47	131.85	0.13
Reach-1	2396	100yr	475.00	489.63	493.06		493.08	0.000305	1.37	373.35	226.23	0.14
Reach-1	2396	500yr	684.00	489.63	493.87		493.90	0.000260	1.48	563.53	241.20	0.13
Reach-1	2200	10yr	256.00	489.63	492.15		492.18	0.000514	1.44	179.28	82.50	0.17
Reach-1	2200	50yr	379.00	489.63	492.57		492.61	0.000650	1.79	214.46	85.52	0.20
Reach-1	2200	100yr	475.00	489.63	492.94		493.00	0.000666	1.96	246.73	88.20	0.20
Reach-1	2200	500yr	684.00	489.63	493.76		493.82	0.000586	2.13	373.97	243.86	0.20
Reach-1	2028	10yr	256.00	487.50	491.66		491.92	0.011841	4.11	62.29	28.39	0.49
Reach-1	2028	50yr	379.00	487.50	491.68		492.25	0.025210	6.03	62.91	28.47	0.71
Reach-1	2028	100yr	475.00	487.50	491.57	491.51	492.56	0.046045	7.95	59.75	28.04	0.96
Reach-1	2028	500yr	684.00	487.50	492.12	492.12	493.39	0.047695	9.03	75.79	30.18	1.00
Reach-1	1973	10yr	256.00	488.58	491.79		491.79	0.000013	0.29	903.79	290.40	0.03
Reach-1	1973	50yr	379.00	488.58	491.96		491.96	0.000024	0.40	952.73	291.49	0.04
Reach-1	1973	100yr	475.00	488.58	492.05		492.06	0.000034	0.49	980.26	292.33	0.05
Reach-1	1973	500yr	684.00	488.58	492.27		492.27	0.000057	0.66	1043.77	294.25	0.06
Reach-1	1917	10yr	259.00	489.00	491.56	491.56	491.77	0.026108	5.21	95.74	216.57	0.73
Reach-1	1917	50yr	391.00	489.00	491.71	491.71	491.93	0.028178	5.73	128.01	237.59	0.77
Reach-1	1917	100yr	469.00	489.00	491.74	491.74	492.02	0.034738	6.44	135.78	242.38	0.86
Reach-1	1917	500yr	692.00	489.00	491.95	491.95	492.23	0.032279	6.72	194.34	303.52	0.85
Reach-1	1716	10yr	259.00	478.80	480.11		480.18	0.009107	2.05	126.49	127.34	0.36
Reach-1	1716	50yr	391.00	478.80	480.27		480.38	0.012779	2.67	147.02	132.06	0.43
Reach-1	1716	100yr	469.00	478.80	480.42		480.54	0.012287	2.84	166.97	136.49	0.43
Reach-1	1716	500yr	692.00	478.80	481.82		481.88	0.002083	1.89	386.25	173.82	0.20

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1622	10yr	270.00	476.80	478.03	477.99	478.35	0.058724	4.77	62.85	82.89	0.84
Reach-1	1622	50yr	413.00	476.80	478.62		478.84	0.022307	4.01	113.43	89.04	0.56
Reach-1	1622	100yr	474.00	476.80	480.01		480.07	0.002617	2.09	246.25	101.57	0.21
Reach-1	1622	500yr	653.00	476.80	481.72		481.75	0.000883	1.64	432.91	117.69	0.13
Reach-1	1563	10yr	270.00	474.30	476.87		476.99	0.011827	3.06	103.83	95.84	0.41
Reach-1	1563	50yr	413.00	474.30	478.55		478.59	0.001362	1.64	286.37	116.74	0.16
Reach-1	1563	100yr	474.00	474.30	480.00		480.01	0.000398	1.12	465.17	130.95	0.09
Reach-1	1563	500yr	653.00	474.30	481.71		481.72	0.000210	1.00	705.79	149.81	0.07
Reach-1	1513	10yr	270.00	474.00	476.57		476.62	0.004779	2.22	167.62	161.05	0.27
Reach-1	1513	50yr	413.00	474.00	478.54		478.55	0.000385	0.98	501.65	178.77	0.09
Reach-1	1513	100yr	474.00	474.00	479.99		480.00	0.000129	0.70	771.51	191.90	0.05
Reach-1	1513	500yr	653.00	474.00	481.71		481.72	0.000077	0.65	1115.38	208.20	0.04
Reach-1	1422	10yr	270.00	471.64	476.47		476.49	0.000608	1.24	294.81	125.26	0.11
Reach-1	1422	50yr	413.00	471.64	478.51		478.52	0.000182	0.88	567.80	142.22	0.06
Reach-1	1422	100yr	474.00	471.64	479.98		479.99	0.000087	0.70	785.65	154.42	0.04
Reach-1	1422	500yr	653.00	471.64	481.70		481.71	0.000065	0.69	1063.42	168.70	0.04
Reach-1	1328	10yr	270.00	471.90	476.38		476.41	0.001228	1.75	209.26	95.35	0.15
Reach-1	1328	50yr	413.00	471.90	478.49		478.50	0.000354	1.24	449.86	133.24	0.09
Reach-1	1328	100yr	474.00	471.90	479.97		479.98	0.000153	0.94	665.69	154.26	0.06
Reach-1	1328	500yr	653.00	471.90	481.69		481.70	0.000099	0.87	943.42	168.05	0.05
Reach-1	1284	10yr	270.00	472.20	476.35		476.37	0.000585	1.12	266.72	107.41	0.10
Reach-1	1284	50yr	413.00	472.20	478.48		478.49	0.000199	0.89	535.45	146.67	0.07
Reach-1	1284	100yr	474.00	472.20	479.97		479.97	0.000096	0.72	774.55	174.15	0.05
Reach-1	1284	500yr	653.00	472.20	481.69		481.70	0.000067	0.69	1089.91	189.97	0.04
Reach-1	1202	10yr	264.00	469.60	476.30	472.74	476.33	0.000419	1.52	206.82	138.92	0.12
Reach-1	1202	50yr	365.00	469.60	478.45	473.21	478.47	0.000205	1.33	316.28	212.67	0.09
Reach-1	1202	100yr	423.00	469.60	479.94	473.43	479.96	0.000136	1.22	392.55	239.73	0.07
Reach-1	1202	500yr	550.00	469.60	481.66	473.89	481.69	0.000118	1.28	480.45	256.23	0.07
Reach-1	1119.5		Culvert									
Reach-1	1076	10yr	264.00	469.20	472.77	472.77	474.54	0.023811	10.67	24.74	80.69	1.00

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

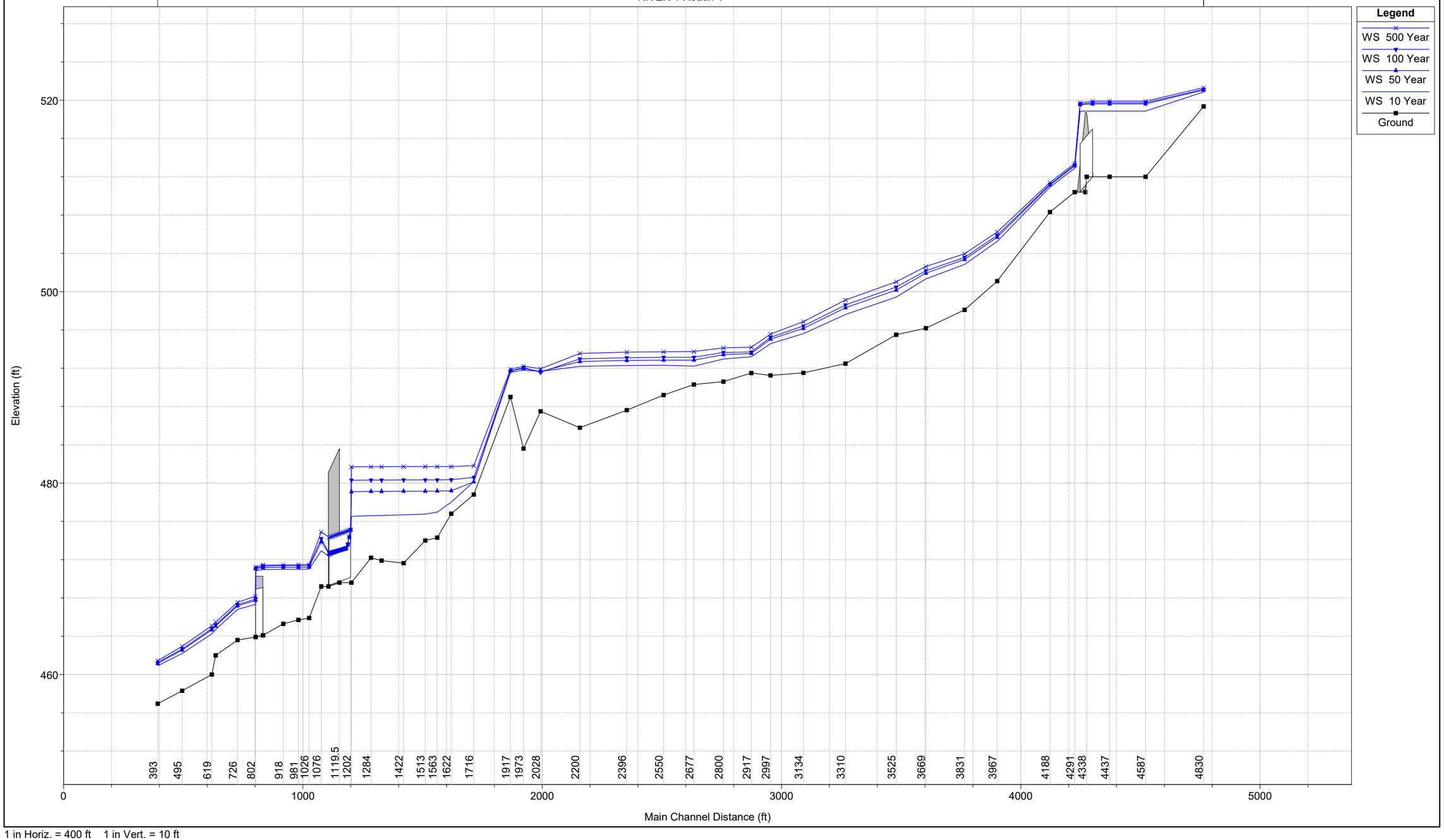
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1076	50yr	365.00	469.20	473.62	473.62	475.82	0.022250	11.90	30.67	117.43	1.00
Reach-1	1076	100yr	423.00	469.20	474.08	474.08	476.51	0.021509	12.50	33.85	136.53	1.00
Reach-1	1076	500yr	550.00	469.20	474.90	474.90	475.08	0.002579	4.80	190.24	165.71	0.36
Reach-1	1026	10yr	264.00	468.01	470.52		470.81	0.008207	4.59	65.98	40.50	0.54
Reach-1	1026	50yr	365.00	468.01	471.02		471.35	0.007404	4.98	87.77	48.57	0.53
Reach-1	1026	100yr	423.00	468.01	471.25		471.62	0.007446	5.27	100.36	59.76	0.54
Reach-1	1026	500yr	550.00	468.01	471.77		472.14	0.006284	5.40	135.65	74.94	0.51
Reach-1	981	10yr	264.00	466.62	470.18		470.50	0.006341	5.06	68.87	39.73	0.50
Reach-1	981	50yr	365.00	466.62	470.67		471.04	0.006537	5.65	90.57	50.47	0.52
Reach-1	981	100yr	423.00	466.62	470.93		471.31	0.006410	5.85	104.21	56.02	0.52
Reach-1	981	500yr	550.00	466.62	471.45		471.86	0.006106	6.21	137.83	73.26	0.52
Reach-1	918	10yr	264.00	466.33	468.90	468.90	469.71	0.028282	7.30	37.73	25.74	0.96
Reach-1	918	50yr	365.00	466.33	469.33	469.33	470.27	0.024790	7.90	49.92	30.09	0.93
Reach-1	918	100yr	423.00	466.33	469.55	469.55	470.55	0.023887	8.24	56.60	32.96	0.93
Reach-1	918	500yr	550.00	466.33	469.89	469.89	471.09	0.024578	9.13	69.16	39.45	0.96
Reach-1	833	10yr	267.00	464.91	466.86	466.63	467.28	0.027861	5.37	52.24	38.34	0.73
Reach-1	833	50yr	370.00	464.91	467.42	466.95	467.82	0.018179	5.25	74.86	41.75	0.62
Reach-1	833	100yr	428.00	464.91	467.68	467.11	468.08	0.015950	5.29	85.86	42.70	0.59
Reach-1	833	500yr	553.00	464.91	468.14	467.42	468.58	0.013950	5.54	105.54	44.52	0.57
Reach-1	817.5		Culvert									
Reach-1	802	10yr	267.00	464.24	467.02	465.66	467.11	0.004174	2.45	109.20	61.06	0.28
Reach-1	802	50yr	370.00	464.24	467.44	465.90	467.57	0.004652	2.88	128.58	63.56	0.30
Reach-1	802	100yr	428.00	464.24	467.64	466.03	467.79	0.004948	3.11	137.74	64.77	0.32
Reach-1	802	500yr	553.00	464.24	467.98	466.30	468.18	0.005787	3.61	153.26	66.89	0.35
Reach-1	726	10yr	267.00	462.44	466.51		466.74	0.013289	4.37	77.01	53.97	0.44
Reach-1	726	50yr	370.00	462.44	466.89		467.17	0.014031	4.85	99.39	67.75	0.46
Reach-1	726	100yr	428.00	462.44	467.07		467.37	0.014452	5.10	113.01	80.24	0.47
Reach-1	726	500yr	553.00	462.44	467.41		467.73	0.014520	5.42	141.61	88.51	0.48
Reach-1	635	10yr	267.00	462.11	465.28		465.49	0.014401	4.08	81.42	61.30	0.45
Reach-1	635	50yr	370.00	462.11	465.74		465.95	0.012418	4.24	112.16	73.28	0.43

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	635	100yr	428.00	462.11	465.94		466.16	0.012044	4.36	127.26	78.02	0.43
Reach-1	635	500yr	553.00	462.11	466.31		466.55	0.011435	4.58	157.92	85.70	0.43
Reach-1	619	10yr	267.00	461.54	464.88	464.05	465.23	0.018646	4.96	62.47	41.33	0.52
Reach-1	619	50yr	370.00	461.54	465.29	464.67	465.70	0.019672	5.57	82.37	55.98	0.55
Reach-1	619	100yr	428.00	461.54	465.45	464.84	465.90	0.020720	5.91	91.89	61.47	0.57
Reach-1	619	500yr	553.00	461.54	465.40	465.40	466.20	0.037335	7.85	88.77	59.84	0.76
Reach-1	495	10yr	366.00	459.66	461.51	461.51	462.16	0.085840	6.44	56.90	51.69	1.00
Reach-1	495	50yr	513.00	459.66	461.85	461.85	462.64	0.077440	7.14	72.72	55.55	0.98
Reach-1	495	100yr	587.00	459.66	462.02	462.02	462.86	0.071582	7.35	81.47	58.95	0.96
Reach-1	495	500yr	750.00	459.66	462.90	462.34	463.47	0.029348	6.12	126.64	69.84	0.66
Reach-1	400		Culvert									
Reach-1	393	10yr	366.00	458.16	460.95	460.95	461.65	0.055111	7.32	58.30	41.20	0.87
Reach-1	393	50yr	513.00	458.16	461.32	461.32	462.17	0.054833	8.10	74.00	43.62	0.89
Reach-1	393	100yr	587.00	458.16	461.50	461.50	462.40	0.053378	8.36	82.06	44.82	0.89
Reach-1	393	500yr	750.00	458.16	461.85	461.85	462.88	0.052830	8.99	97.82	47.22	0.90

SquabbleTribD Plan: Post-Project 3/3/2022 3:39:07 PM

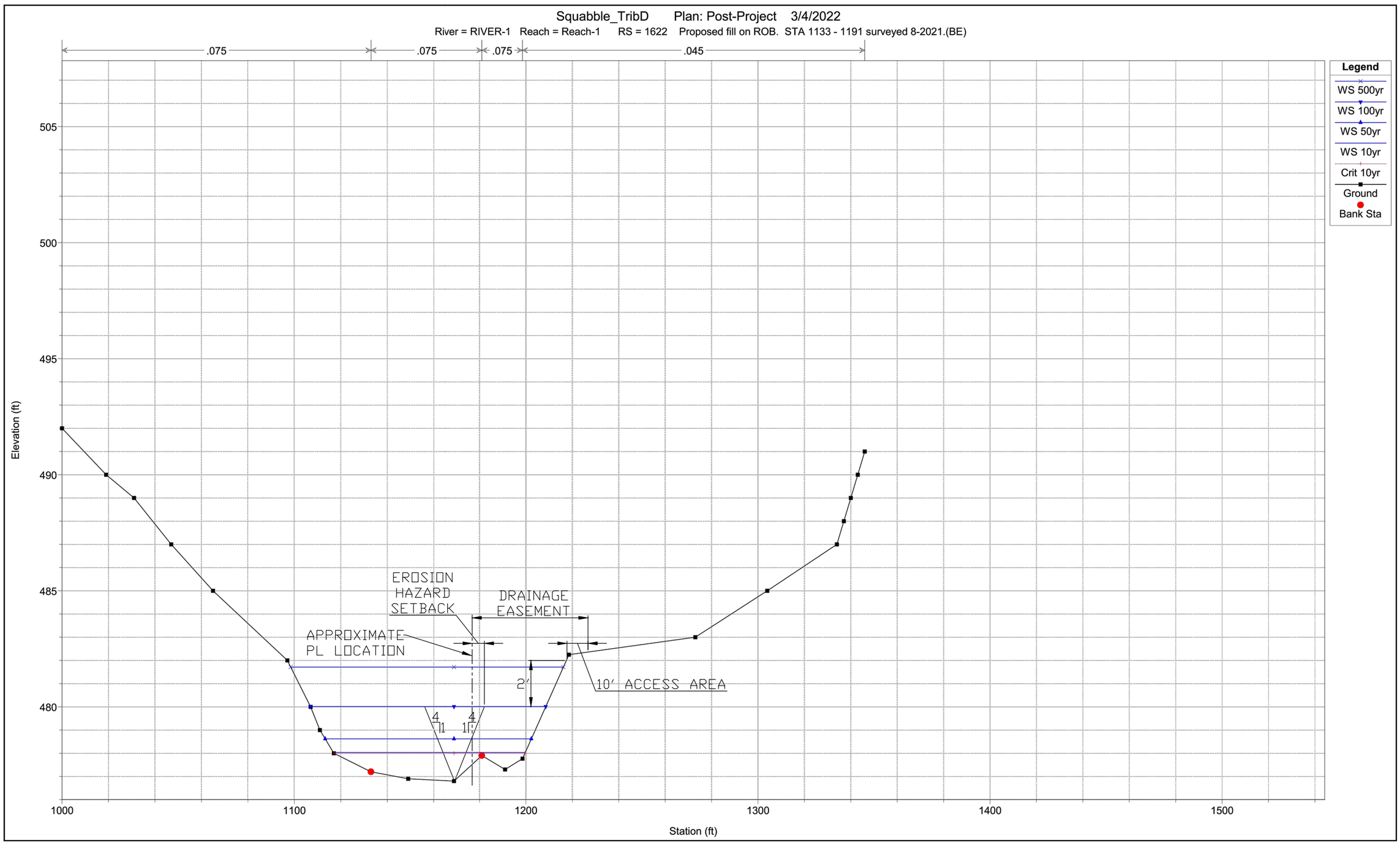
RIVER-1 Reach-1



1 in Horiz. = 400 ft 1 in Vert. = 10 ft

Squabble_TribD Plan: Post-Project 3/4/2022

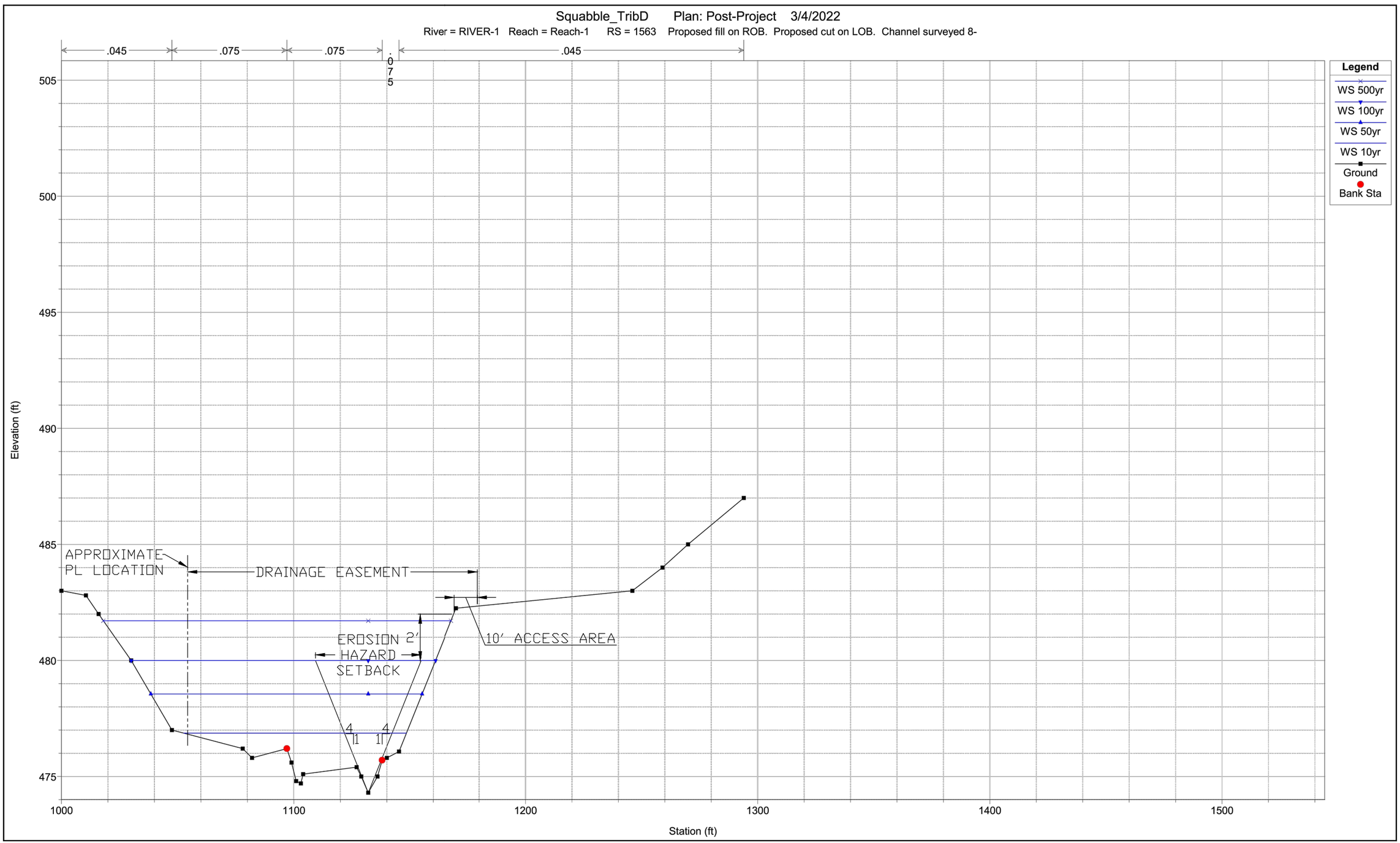
River = RIVER-1 Reach = Reach-1 RS = 1622 Proposed fill on ROB. STA 1133 - 1191 surveyed 8-2021.(BE)



1 in Horiz. = 40 ft 1 in Vert. = 4 ft

Squabble_TribD Plan: Post-Project 3/4/2022

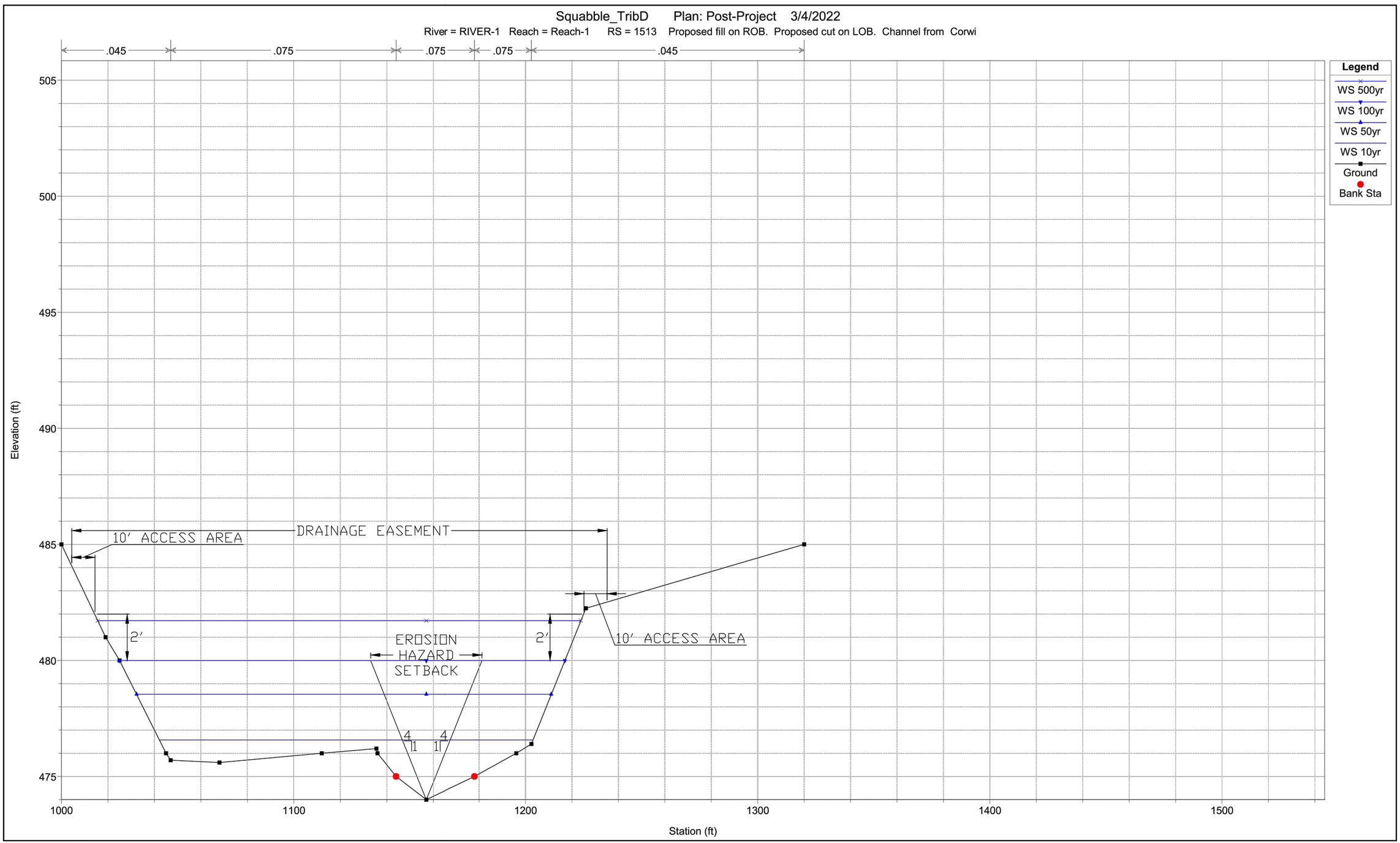
River = RIVER-1 Reach = Reach-1 RS = 1563 Proposed fill on ROB. Proposed cut on LOB. Channel surveyed 8-



1 in Horiz. = 40 ft 1 in Vert. = 4 ft

Squabble_TribD Plan: Post-Project 3/4/2022

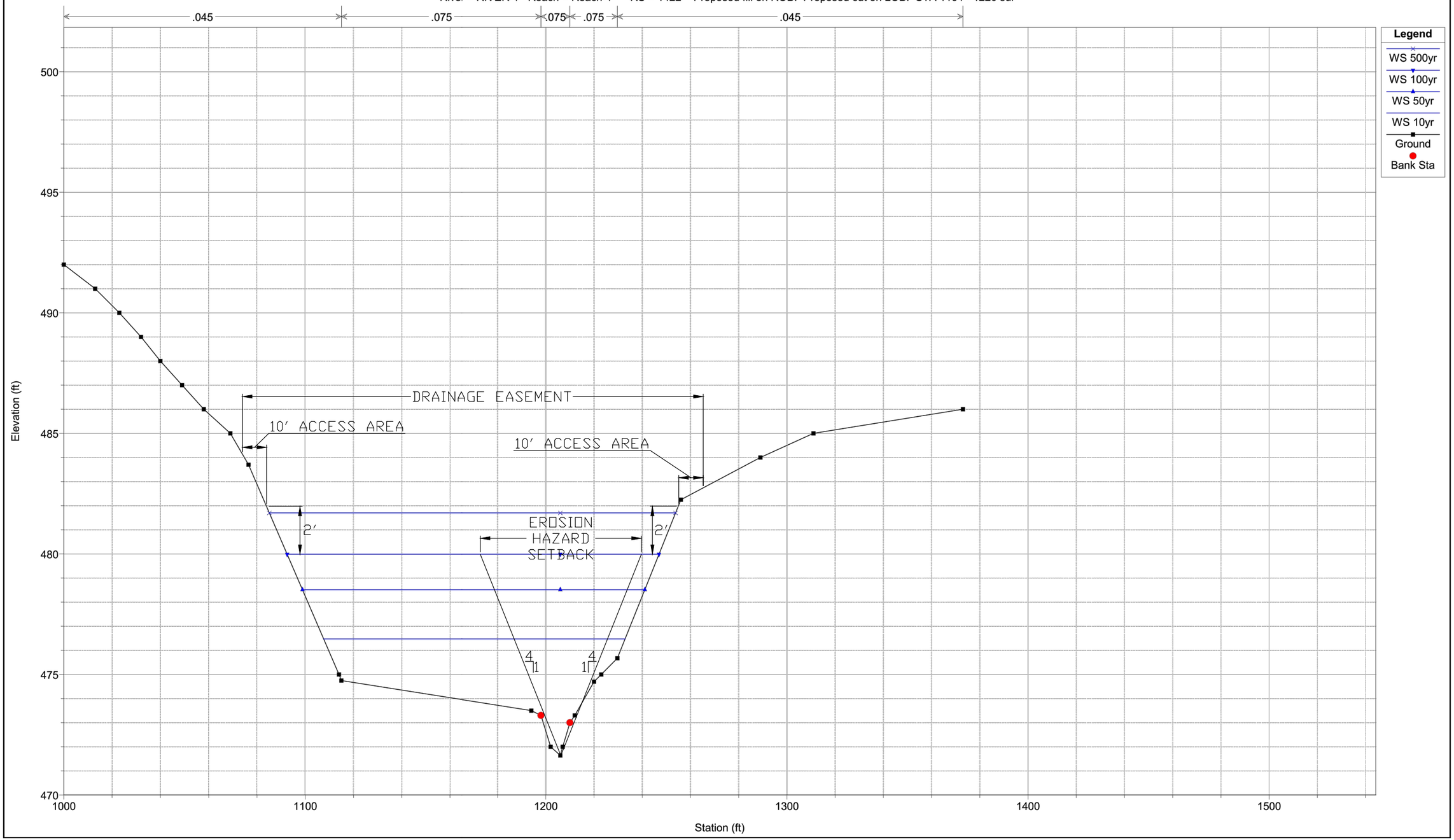
River = RIVER-1 Reach = Reach-1 RS = 1513 Proposed fill on ROB. Proposed cut on LOB. Channel from Corwi



1 in Horiz. = 40 ft 1 in Vert. = 4 ft

Squabble_TribD Plan: Post-Project 3/4/2022

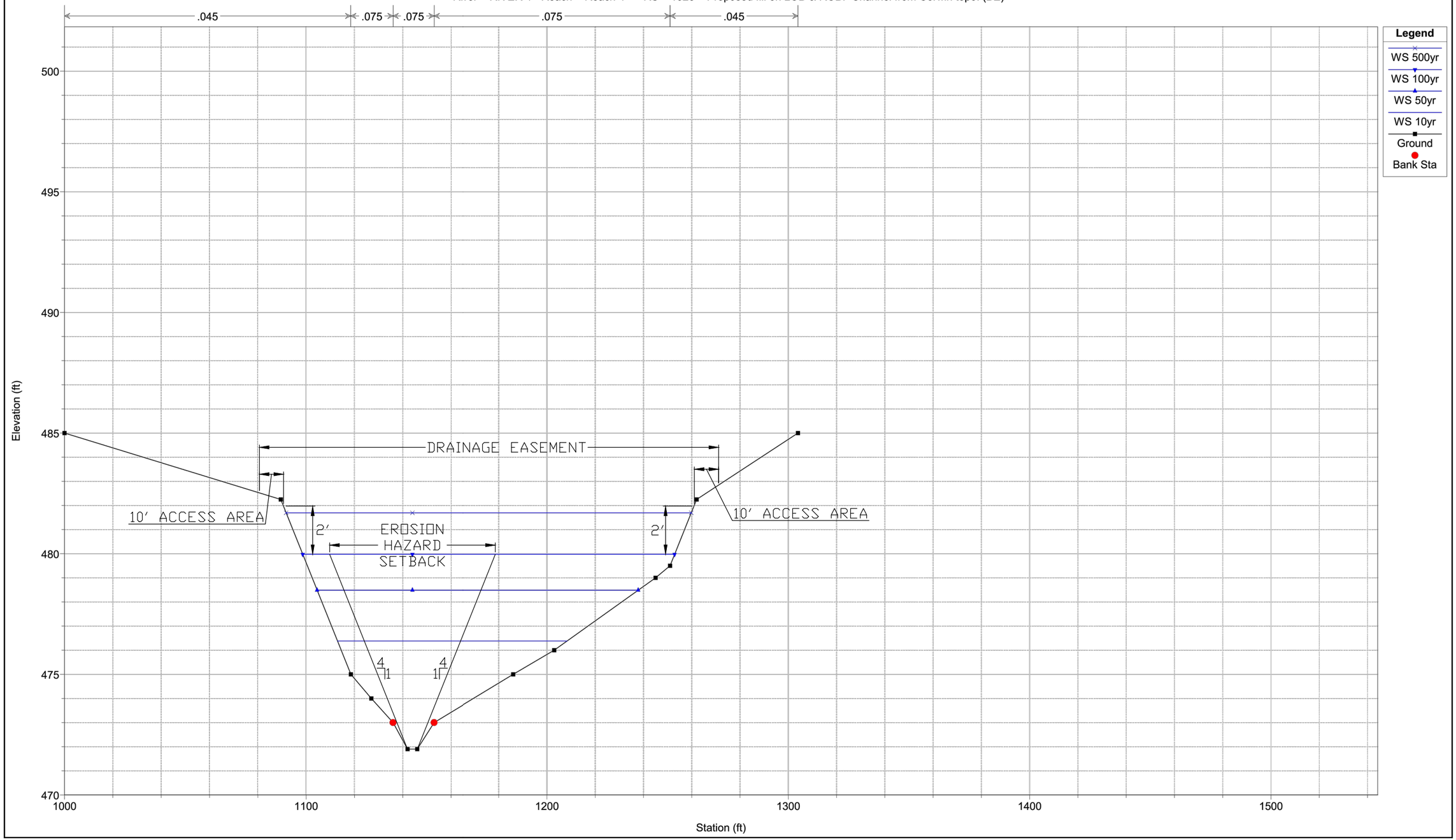
River = RIVER-1 Reach = Reach-1 RS = 1422 Proposed fill on ROB. Proposed cut on LOB. STA 1104 - 1220 sur



1 in Horiz. = 40 ft 1 in Vert. = 4 ft

Squabble_TribD Plan: Post-Project 3/4/2022

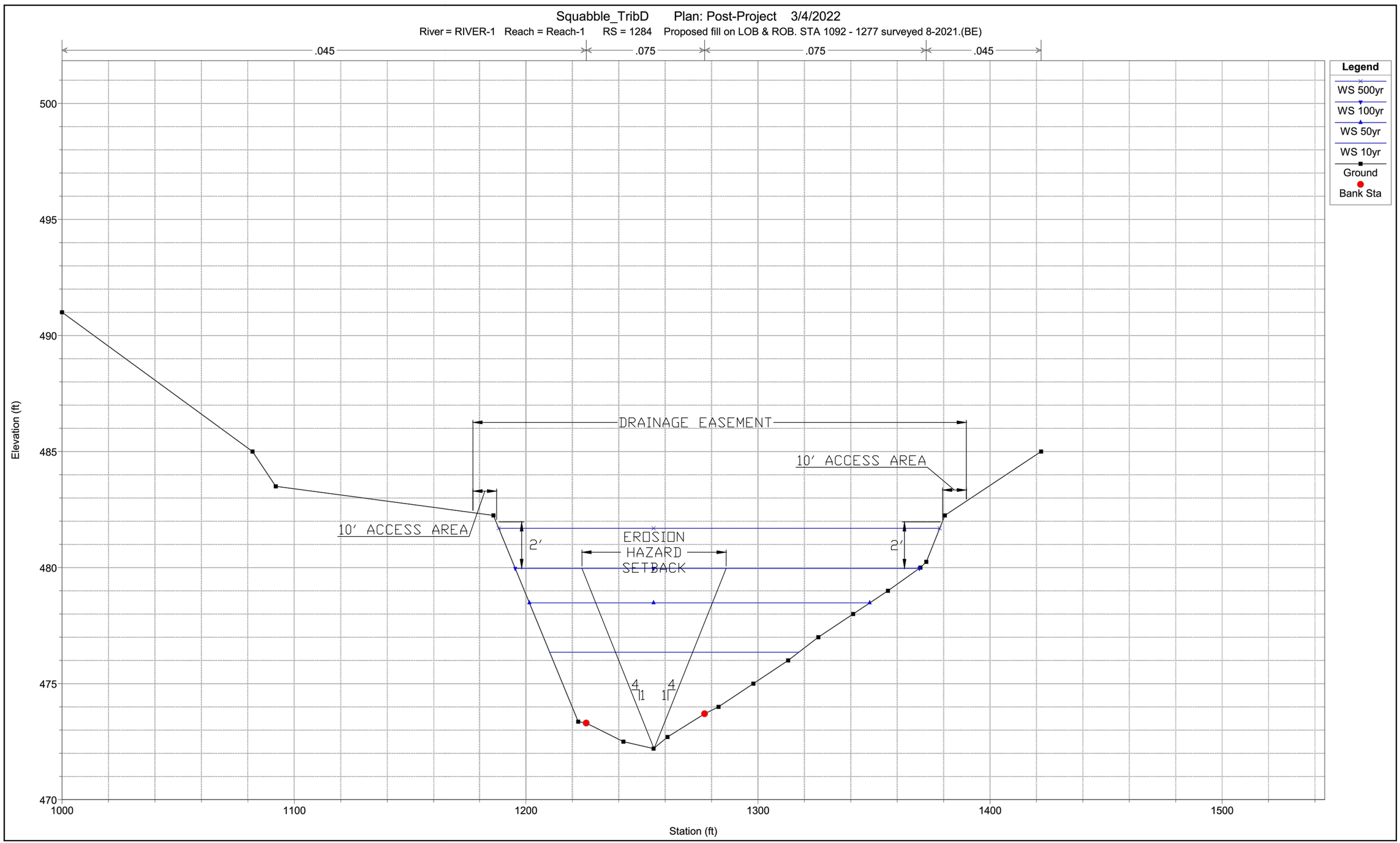
River = RIVER-1 Reach = Reach-1 RS = 1328 Proposed fill on LOB & ROB. Channel from Corwin topo. (BE)



1 in Horiz. = 40 ft 1 in Vert. = 4 ft

Squabble_TribD Plan: Post-Project 3/4/2022

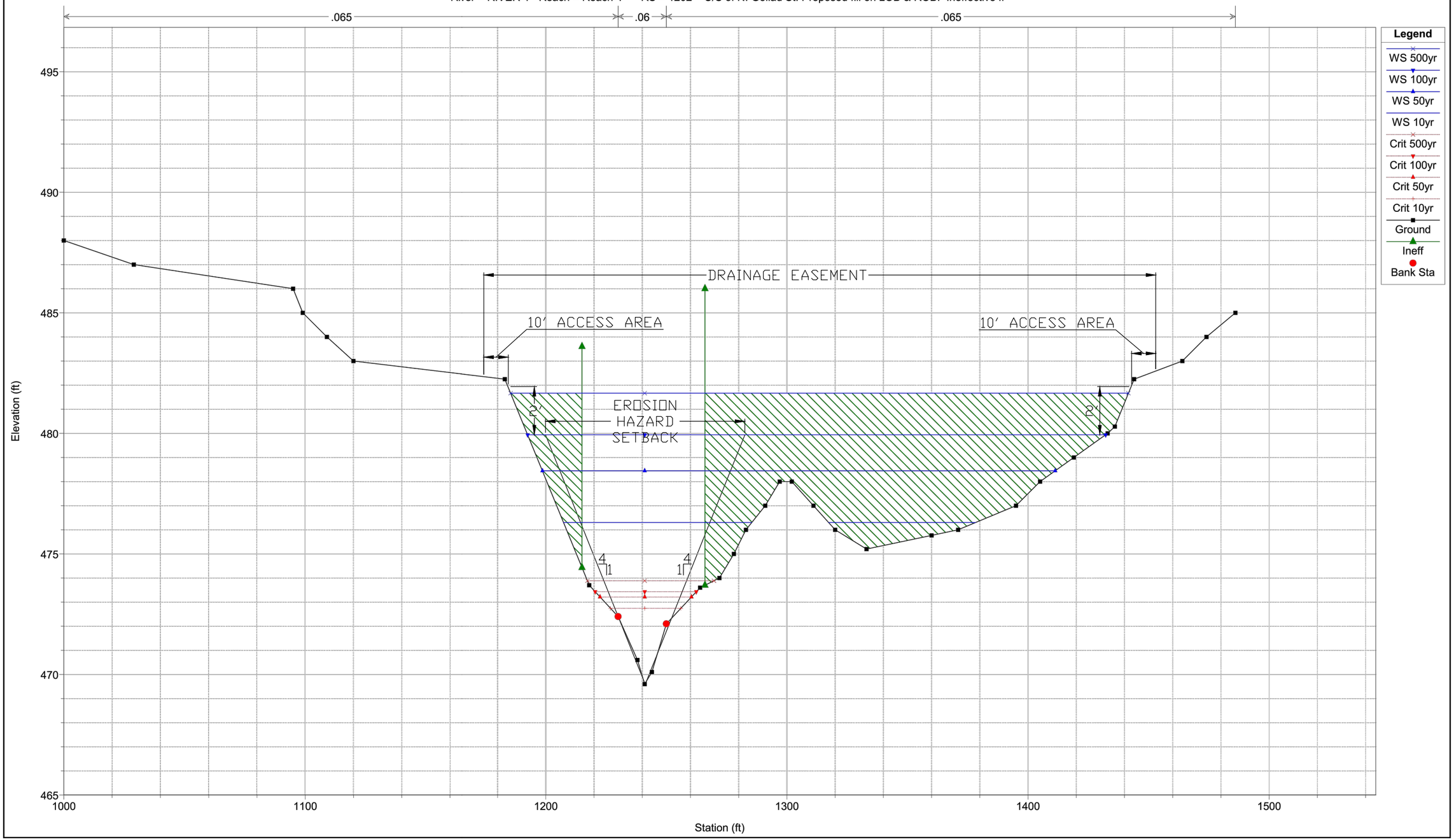
River = RIVER-1 Reach = Reach-1 RS = 1284 Proposed fill on LOB & ROB. STA 1092 - 1277 surveyed 8-2021.(BE)



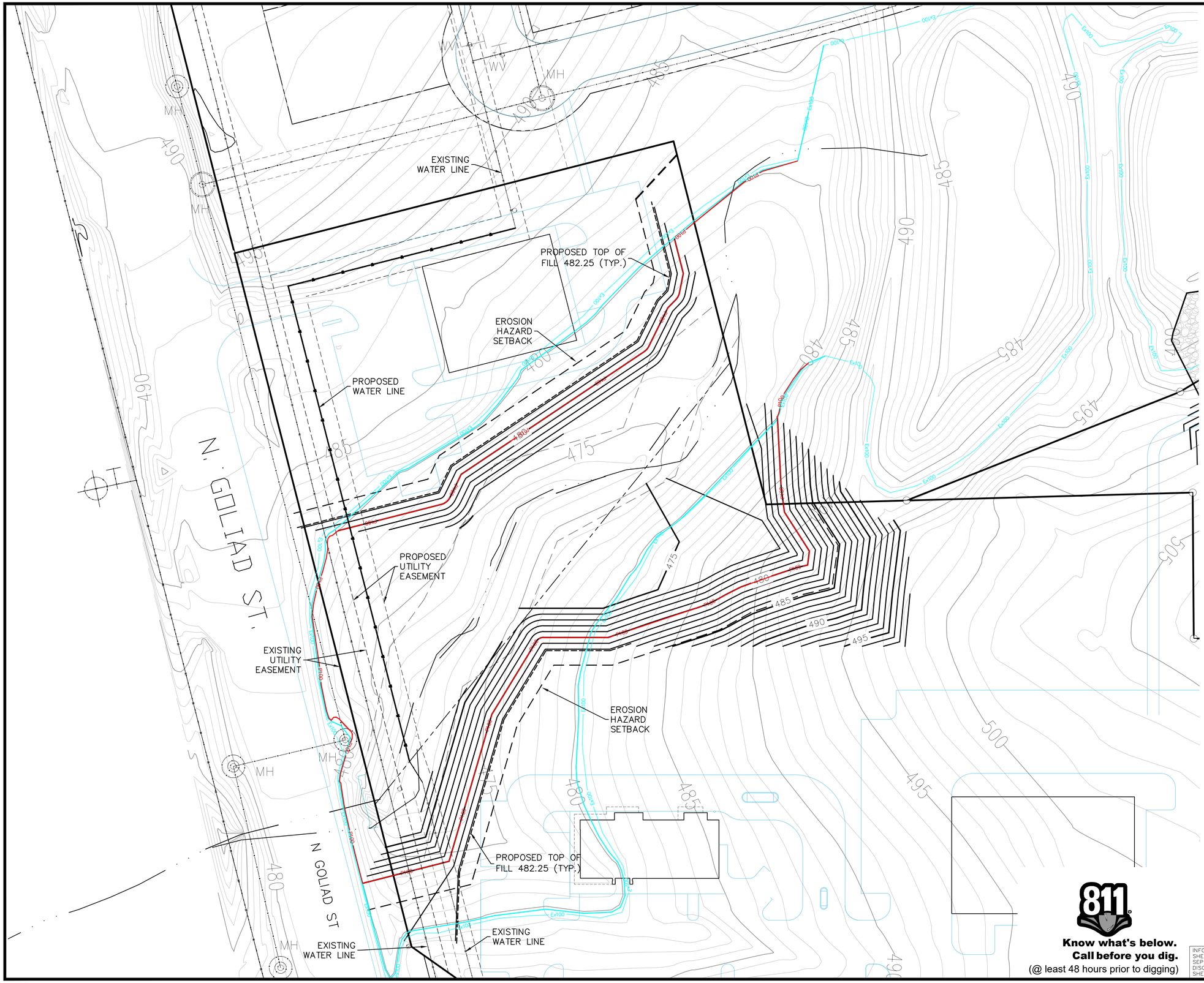
1 in Horiz. = 40 ft 1 in Vert. = 4 ft

Squabble_TribD Plan: Post-Project 3/4/2022

River = RIVER-1 Reach = Reach-1 RS = 1202 U/S of N. Goliad St. Proposed fill on LOB & ROB. Ineffective fl



1 in Horiz. = 40 ft 1 in Vert. = 4 ft



LEGEND

607	EXISTING CONTOUR
607	PROPOSED CONTOURS

NOTES

1. ALL SLOPES WITHIN ACCESSIBLE PARKING AREAS SHALL NOT EXCEED 2.0% IN ANY DIRECTION. SLOPES ALONG ALL SIDEWALKS AND ACCESSIBLE ROUTES SHALL NOT EXCEED 5.0% IN THE DIRECTION OF TRAVEL AND 2.0% IN CROSS SLOPE UNLESS OTHERWISE SPECIFIED ON THE PLAN.
2. IN UNPAVED AREAS, SLOPES SHALL NOT EXCEED 4' HORIZONTAL TO 1' VERTICAL (4:1).
3. IN PAVED AREAS, SPOT ELEVATIONS ARE TO TOP OF PAVEMENT (GUTTER LINE) UNLESS OTHERWISE NOTED. ADD 0.5' FOR TOP OF CURB. IN UNPAVED AREAS, ALL SPOT ELEVATIONS ARE TO TOP OF FINISHED GRADE, TOP OF SOD OR TOP OF LANDSCAPE ADDITIONS AS APPLICABLE.
4. REFER TO GENERAL NOTES SHEET FOR SITE ACCESSIBILITY STANDARDS AND ADDITIONAL NOTES.
5. ALL UTILITIES SHALL BE CONSTRUCTED BEGINNING AT THE TIE-IN LOCATION TO EXISTING UTILITIES (DOWNSTREAM) AND PROCEED TO PROPOSED STRUCTURES (UPSTREAM).
6. CONTRACTOR TO VERIFY THE EXISTENCE, LOCATION AND DEPTHS OF ALL EXISTING UTILITIES WITHIN THE PROJECT WORK AREA BEFORE COMMENCING CONSTRUCTION.
7. THE UTILITIES SHOWN ON THESE PLANS WERE COMPILED FROM VARIOUS SOURCES AND ARE INTENDED TO SHOW THE GENERAL HORIZONTAL AND VERTICAL LOCATIONS OF UTILITIES IN THE AREA OF CONSTRUCTION. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE UTILITY INFORMATION SHOWN ON THESE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE EXACT LOCATION OF ALL UTILITIES.
8. UNDER THE TEXAS "ONE-CALL" LAW THE CONTRACTOR MUST CONTACT THE NOTIFICATION CALL CENTER BY DIALING 811 NO SOONER THAN 14 DAYS PRIOR AND AT LEAST 48 HOURS BEFORE THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES IN ORDER TO IDENTIFY ANY UTILITIES IN CONFLICT WITH THE PROPOSED FACILITIES. CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY WHEN CONFLICTS WITH THE EXISTING UTILITIES ARE DISCOVERED.
9. IF WALLS ARE PART OF THE PROPOSED SITE DESIGN, FINISHED GROUND GRADES AT HIGH SIDE AND LOW SIDE OF WALL DO NOT NECESSARILY INDICATE WALL STRUCTURE ELEVATIONS AND ARE NOT INTENDED TO REPRESENT FOOTING DEPTHS OR STRUCTURAL WALL HEIGHTS. CONTRACTOR SHALL REFER TO STRUCTURAL PLANS AND DETAILS FOR FOOTING DEPTHS AND FOR ACTUAL WALL HEIGHTS.

NOTES TO CONTRACTOR

1. INFORMATION ON THIS SHEET AND OTHER SHEETS THROUGHOUT THIS PLAN SET IS PART OF A UNIFIED DESIGN. THE CONTRACTOR SHALL NOT SEPARATE DRAWINGS FROM THE SET FOR DISTRIBUTION TO SPECIFIC DISCIPLINES. EACH SUBCONTRACTOR SHALL BE PROVIDED WITH ALL SHEETS WITHIN THIS PLAN SET.
2. CONTRACTOR SHALL REFERENCE GENERAL NOTES SHEET FOR ADDITIONAL INFORMATION. INFORMATION ON THE GENERAL NOTES SHEET IS PART OF A UNIFIED DESIGN AND IS PERTINENT TO THIS PLAN SHEET.
3. CONTRACTOR SHALL REFERENCE ALL IRRIGATION PLANS, MEP SITE PLANS, AND CIVIL ENGINEERING UTILITY PLANS FOR INFORMATION REGARDING SLEEVES BENEATH PAVEMENT.

BENCHMARKS

BM#1:
CITY OF ROCKWALL MONUMENT 14

NAVD88
ELEV.=497.13

811 Know what's below. Call before you dig. (@ least 48 hours prior to digging)

INFORMATION ON THIS SHEET IS PERTINENT TO ALL OTHER DESIGN SHEETS IN THIS SET OF DRAWINGS. THE CONTRACTOR SHALL NOT SEPARATE DRAWINGS FROM THE SET FOR DISTRIBUTION TO SPECIFIC DISCIPLINES. EACH SUBCONTRACTOR SHALL BE PROVIDED WITH ALL SHEETS WITHIN THIS PLAN SET.

BANNISTER ENGINEERING
240 N. Mitchell Road | Mansfield, TX 76063 | 817.842.2094 | 817.842.2095 fax
REGISTRATION # F-10599 (TEXAS)

STONE CREEK RETAIL
ROCKWALL, TEXAS

FLOOD STUDY GRADING PLAN (1 OF 2)

No.	Date	Revision Description

PROJECT NO.: 262-21-001

STATE OF TEXAS
MICHAEL J. MOORE
128498
LICENSED PROFESSIONAL ENGINEER
3/15/2022

SHEET NUMBER
20

File: B:\Clients\262 (DuWest)\262-21-001 (Stone Creek Retail - Rockwall)\Flood Study\FS Grading Plan.dwg || Date Plotted: 3/15/2022 3:42 PM || Plotted By: rmoore

PROPOSED 166 SQ.YD.
GROUTED ROCK RIPRAP

EXISTING
OUTLET CONTROL
STRUCTURE
INSTALL
TRASH RACK

EXISTING
TOP OF BERM 502.0

PROPOSED 65 SQ.YD.
CONCRETE PILOT
CHANNEL

PROPOSED
EMERGENCY SPILLWAY
FL = 500.0
46' WIDE

PROPERTY LINE

GRAPHIC SCALE

40 0 20 40 80

(IN FEET)
1 inch = 40 ft.

LEGEND

607	EXISTING CONTOUR
607	PROPOSED CONTOURS

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BENCHMARKS

BM#1:
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BANNISTER ENGINEERING
240 N. Mitchell Road | Mansfield, TX 76063 | 817.842.2094 | 817.842.2095 fax
REGISTRATION # F-10599 (TEXAS)

STONE CREEK RETAIL
ROCKWALL, TEXAS
FLOOD STUDY GRADING PLAN (2 OF 2)

No.	Date	Revision Description

PROJECT NO.: 262-21-001

STATE OF TEXAS
MICHAEL J. MOORE
128498
LICENSED
PROFESSIONAL ENGINEER
3/15/2022

SHEET NUMBER
20

File: B:\Clients\262 (DuWest)\262-21-001 (Stone Creek Retail – Rockwall)\Flood Study\FS Grading Plan.dwg || Date Plotted: 3/15/2022 3:44 PM || Plotted By: mmoore

DEVELOPMENT APPLICATION

City of Rockwall
Planning and Zoning Department
385 S. Goliad Street
Rockwall, Texas 75087

STAFF USE ONLY

PLANNING & ZONING CASE NO.

NOTE: THE APPLICATION IS NOT CONSIDERED ACCEPTED BY THE CITY UNTIL THE PLANNING DIRECTOR AND CITY ENGINEER HAVE SIGNED BELOW.

DIRECTOR OF PLANNING:

CITY ENGINEER:

PLEASE CHECK THE APPROPRIATE BOX BELOW TO INDICATE THE TYPE OF DEVELOPMENT REQUEST [SELECT ONLY ONE BOX]:

PLATTING APPLICATION FEES:
- ☐ MASTER PLAT ($100.00 + $15.00 ACRE) [1]
- ☐ PRELIMINARY PLAT ($200.00 + $15.00 ACRE) [1]
- ☐ FINAL PLAT ($300.00 + $20.00 ACRE) [1]
- ☐ REPLAT ($300.00 + $20.00 ACRE) [1]
- ☐ AMENDING OR MINOR PLAT ($150.00)
- ☐ PLAT REINSTATEMENT REQUEST ($100.00)

SITE PLAN APPLICATION FEES:
- ☑ SITE PLAN ($250.00 + $20.00 ACRE) [1]
- ☐ AMENDED SITE PLAN/ELEVATIONS/LANDSCAPING PLAN ($100.00)

ZONING APPLICATION FEES:
- ☐ ZONING CHANGE ($200.00 + $15.00 ACRE) [1]
- ☐ SPECIFIC USE PERMIT ($200.00 + $15.00 ACRE) [1]
- ☐ PD DEVELOPMENT PLANS ($200.00 + $15.00 ACRE) [1]

OTHER APPLICATION FEES:
- ☐ TREE REMOVAL ($75.00)
- ☐ VARIANCE REQUEST ($100.00)

NOTES:
[1]: IN DETERMINING THE FEE, PLEASE USE THE EXACT ACREAGE WHEN MULTIPLYING BY THE PER ACRE AMOUNT FOR REQUESTS ON LESS THAN ONE ACRE, ROUND UP TO ONE (1) ACRE.

PROPERTY INFORMATION [PLEASE PRINT]

ADDRESS: not yet assigned*

SUBDIVISION: LOT: BLOCK:

GENERAL LOCATION: NEC E Quail Run Road and 205

ZONING, SITE PLAN AND PLATTING INFORMATION [PLEASE PRINT]

CURRENT ZONING: PD-70
PROPOSED ZONING: PD-70
ACREAGE: 8.684 AC LOTS [CURRENT]:

CURRENT USE: Undeveloped land
PROPOSED USE: Commercial (Retail)
LOTS [PROPOSED]:

☐ ***SITE PLANS AND PLATS:*** *BY CHECKING THIS BOX YOU ACKNOWLEDGE THAT DUE TO THE PASSAGE OF HB3167 THE CITY NO LONGER HAS FLEXIBILITY WITH REGARD TO ITS APPROVAL PROCESS, AND FAILURE TO ADDRESS ANY OF STAFF'S COMMENTS BY THE DATE PROVIDED ON THE DEVELOPMENT CALENDAR WILL RESULT IN THE DENIAL OF YOUR CASE.*

OWNER/APPLICANT/AGENT INFORMATION [PLEASE PRINT/CHECK THE PRIMARY CONTACT/ORIGINAL SIGNATURES ARE REQUIRED]

☐ OWNER
CONTACT PERSON:
ADDRESS:
CITY, STATE & ZIP:
PHONE:
E-MAIL:

☑ APPLICANT: DuWest Realty, LLC
CONTACT PERSON: Bowen Hendrix
ADDRESS: 4403 North Central Expressway
Suite 200
CITY, STATE & ZIP: Dallas, TX 75025
PHONE: (214) 918-1804
E-MAIL: bowen@duwestrealty.com

NOTARY VERIFICATION [REQUIRED]

BEFORE ME, THE UNDERSIGNED AUTHORITY, ON THIS DAY PERSONALLY APPEARED Bowen Hendrix [OWNER] THE UNDERSIGNED, WHO STATED THE INFORMATION ON THIS APPLICATION TO BE TRUE AND CERTIFIED THE FOLLOWING:

"I HEREBY CERTIFY THAT I AM THE OWNER FOR THE PURPOSE OF THIS APPLICATION; ALL INFORMATION SUBMITTED HEREIN IS TRUE AND CORRECT; AND THE APPLICATION FEE OF $ 230.26 *TO COVER THE COST OF THIS APPLICATION, HAS BEEN PAID TO THE CITY OF ROCKWALL ON THIS THE* January *DAY OF* 2022. *BY SIGNING THIS APPLICATION, I AGREE THAT THE CITY OF ROCKWALL (I.E. "CITY") IS AUTHORIZED AND PERMITTED TO PROVIDE INFORMATION CONTAINED WITHIN THIS APPLICATION TO THE PUBLIC. THE CITY IS ALSO AUTHORIZED AND PERMITTED TO REPRODUCE ANY COPYRIGHTED INFORMATION SUBMITTED IN CONJUNCTION WITH THIS APPLICATION, IF SUCH REPRODUCTION IS ASSOCIATED OR IN RESPONSE TO A REQUEST FOR PUBLIC INFORMATION."*

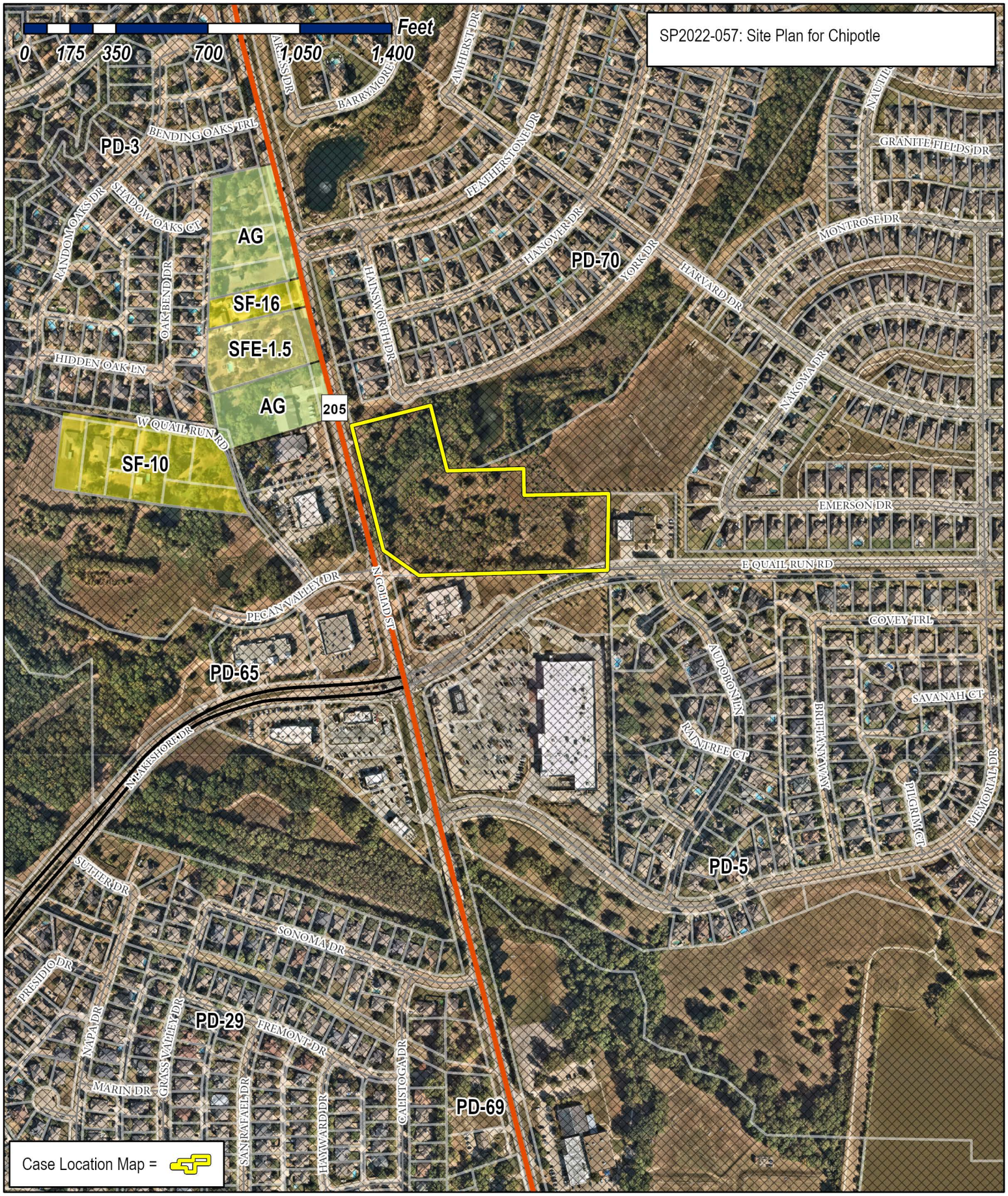
GIVEN UNDER MY HAND AND SEAL OF OFFICE ON THIS THE 11 *DAY OF* January *20* 22

OWNER'S SIGNATURE

NOTARY PUBLIC IN AND FOR THE STATE OF TEXAS Lisa Caldwell

LISA DIANE CALDWELL
Notary ID #742049
My Commission Expires
May 26, 2025

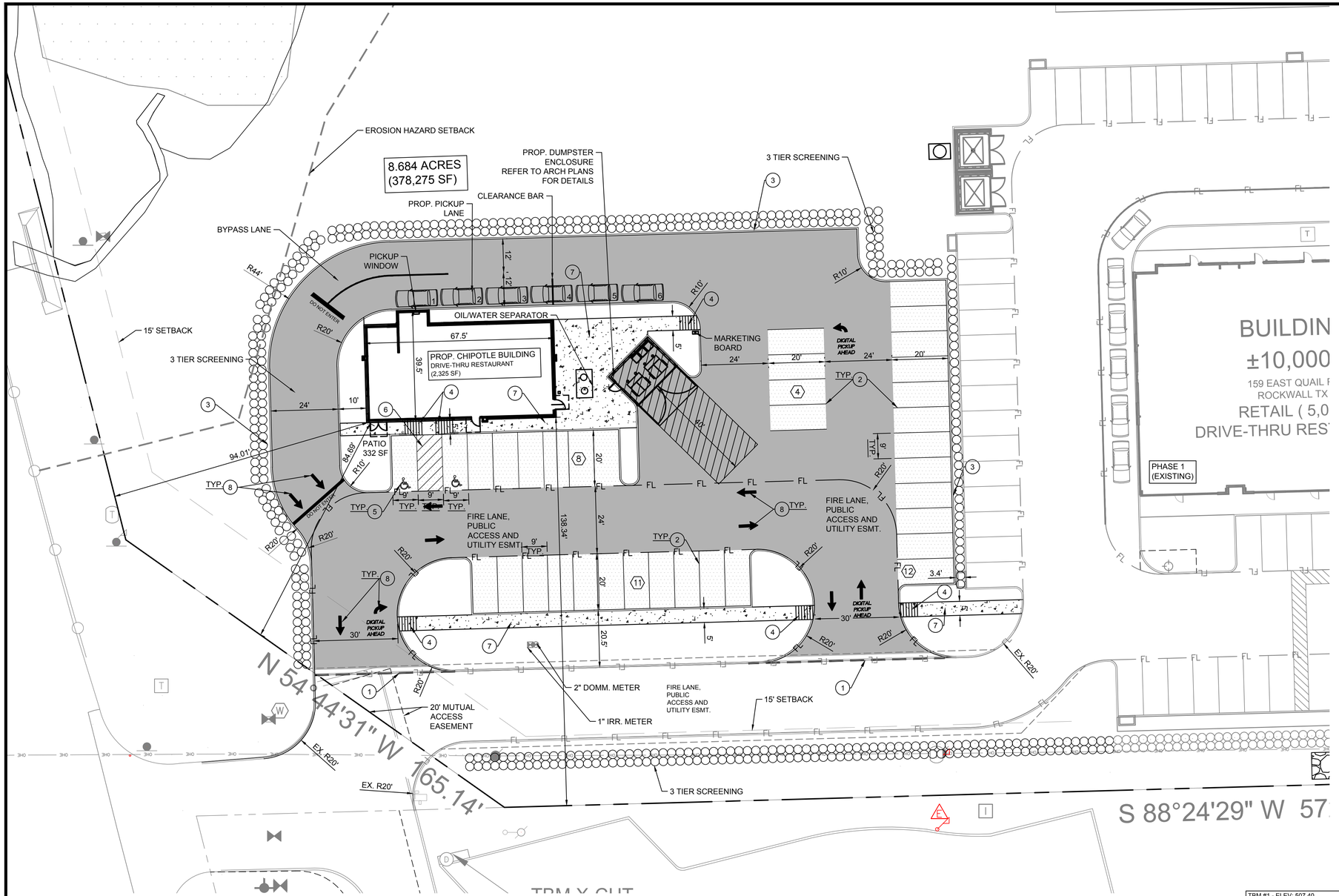
MY COMMISSION EXPIRES

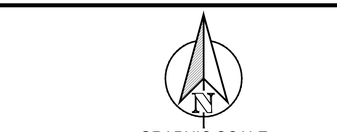


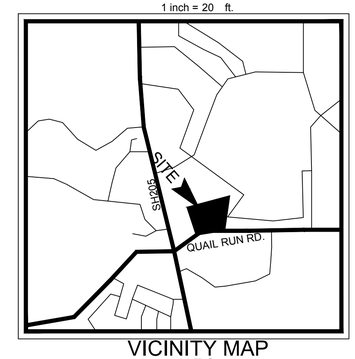
City of Rockwall

Planning & Zoning Department
385 S. Goliad Street
Rockwall, Texas 75087
(P): (972) 771-7745
(W): www.rockwall.com

The City of Rockwall GIS maps are continually under development and therefore subject to change without notice. While we endeavor to provide timely and accurate information, we make no guarantees. The City of Rockwall makes no warranty, express or implied, including warranties of merchantability and fitness for a particular purpose. Use of the information is the sole responsibility of the user.







VICINITY MAP
N.T.S.

CONSTRUCTION SCHEDULE	
	PROPOSED STANDARD DUTY CONCRETE PAVEMENT
	PROPOSED HEAVY DUTY CONCRETE PAVEMENT
	PROPOSED SIDEWALK CONCRETE PAVEMENT
	PROPERTY LINE
	PROPOSED CONCRETE CURB AND GUTTER
FL	PROPOSED FIRE LANE, PUBLIC ACCESS ADN UTILITY EASEMENT
	PROPOSED SAWCUT
4	PARKING COUNT

CONSTRUCTION SCHEDULE	
1	PROP. FULL DEPTH SAWCUT
2	PROP. 4" PARKING STALL STRIPING COLOR: WHITE (TYP)
3	PROP. CURB & GUTTER
4	PROP. PEDESTRIAN RAMP
5	PROP. HANDICAP SYMBOL
6	PROP. PAVEMENT STRIPING
7	PROP. SIDEWALK
8	PROP. ARROW PAVEMENT STRIPING

PARKING DATA TABLE	
PARKING REQ.	
DRIVE-THRU RESTAURANT (2,325 SF) 1/ 100 SF	24 SPACES
STANDARD PARKING	33 SPACES
ADA PARKING	2 SPACES
PARKING PROVIDED	35 SPACES (2 ADA)

SITE DATA TABLE			
	PHASE 2 (CHIPOTLE)	PHASE 1 (EXISTING)	TOTAL
SITE AREA	8.684 AC (378,275 SF)	8.684 AC (378,275 SF)	8.684 AC (378,275 SF)
ZONING	PD-70	PD-70	PD-70
PROPOSED USE	DRIVE-THRU RESTAURANT	RETAIL/ DRIVE-THRU RESTAURANT	RETAIL/ DRIVE-THRU RESTAURANT
BUILDING SIZE	2,325 SF	BUILDING B- 10,000 SF BUILDING C- 10,OOO SF	20,325 SF
PATIO AREA	332 SF	2,777 SF	3,109 SF
LOT COVERAGE	.06 %	5.2 %	5.26 %
FLOOR TO AREA RATIO	0.00 : 1	0.05 : 1	0.06 :1
BUILDING STORIES	1 STORY	1 STORY	1 STORY
TOTAL IMPERVIOUS	29,064 SF (0.8%)	116,406 SF (30.8%)	145,138 SF (38.3%)
OPEN SPACE	8.62 AC (92 %)	6.04 AC (69.2%)	5.4 AC (61.7 %)

TBM #1 - ELEV: 507.40
AN "X" CUT SET APPROXIMATELY 44.2' SOUTH AND 46.9' WEST FROM THE SOTUH EAST PROPERTY CORNER ALONG QUAL RD.

TBM #2 - ELEV: 489.60
AND "X" CUT SET APPROXIMATELY 16.6' SOUTH AND 18.6' WEST FROM THE SOTUWEST PROPERTY CORNER ALONG QUAL RD.

TBM #3 - ELEV: 486.4
AND "X" CUT SET APPROXIMATELY 176.7' SOUTH AND 103.1' EAST FROM THE SOTUH EAST PROPERTY CORNER ALONG QUAIL RD.

ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN.

NOTES:

1. A SEPARATE SIGNAGE PERMIT IS REQUIRED BY THE CITY OF ROCKWALL.
2. ALL WALLS 3' IN HEIGHT OR GREATER SHALL BE DESIGNED BY AN ENGINEER, LICENSED IN THE STATE OF TEXAS.
3. ALL WALLS MUST BE ROCK OR STONE FACE. NO WALLS SHALL BE SMOOTH CONCRETE.
4. NO TREES SHALL BE PLANTED WITHIN 10' OF NON-STEEL ENCASED PUBLIC UTILITIES.
5. SOD MUST BE LAID WITHIN ALL DISTURBED R.O.W. BEFORE ACCEPTANCE OF PROJECT.

DUWEST ROCKWALL, TX

LEGAL DESCRIPTION AND OR ADDRESS:

STONE CREEK BALANCE LTD
ABSTRACT. NO 131
8.684 AC (378,275 SF)

OWNER:
DuWEST REALTY, LLC
4403 N.CENTRAL EXWAY SUITE #200
DALLAS, TX 75025
CONTACT: BOWEN HENDRIX
PH: 214.918.1804

APPLICANT:
CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
PH: 817.281.0572

CASE NUMBER

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING AND ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____.

WITNESS OUR HANDS THIS ____ DAY OF _____.

PLANNING AND ZONING COMMISSION, CHAIRMAN

DIRECTOR OF PLANNING AND ZONING

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
1903 CENTRAL DR, SUITE #406
BEDFORD, TX 76021
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM

PRELIMINARY
FOR REVIEW ONLY
Not for construction purposes.
CLAYMOORE ENGINEERING
ENGINEERING AND PLANNING CONSULTANTS
Engineer DREW DONOSKY
P.E. No. 125651 Date 10/19/2022

DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

CITY SITE PLAN

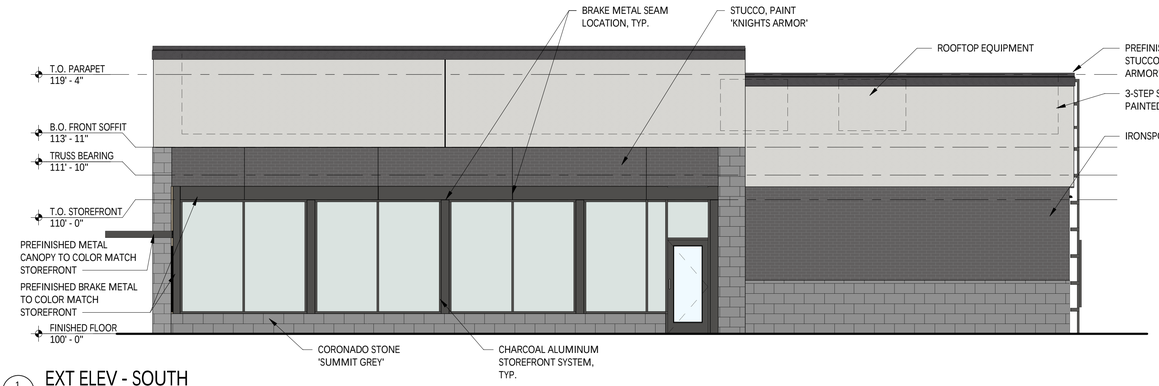
DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	10/19/2022

SHEET
SP-1

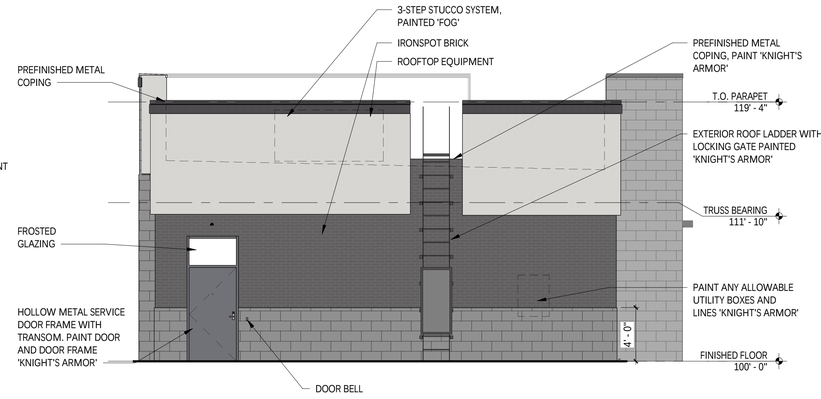
File No. 2022-002

CASE # Z2022-042

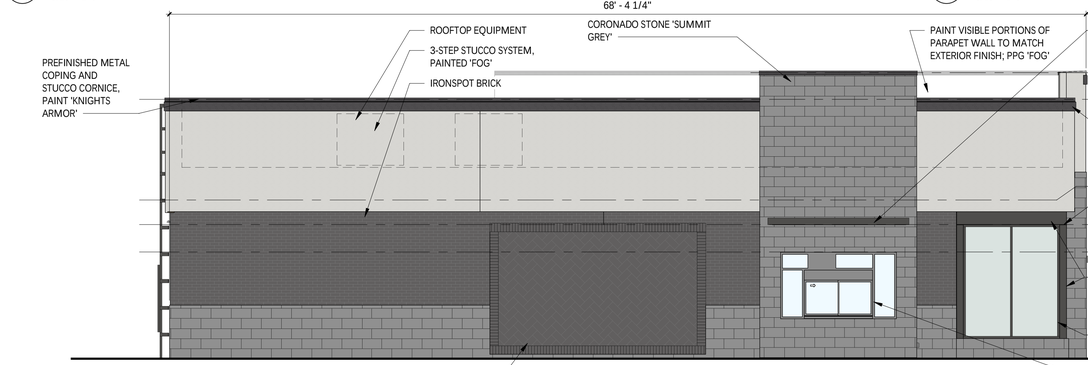
PLOTTED BY: LYNN ROWLAND
PLOT DATE: 10/19/2022 1:36 PM
LOCATION: Z:\PROJECTS\PROJECTS\2022-175 DUWEST ROCKWALL PH. 2\CADD\SHEETS\SP-1 SITE PLAN.DWG
LAST SAVED: 10/12/2022 8:02 AM



1 / F000 EXT ELEV - SOUTH
3/16" = 1'-0"



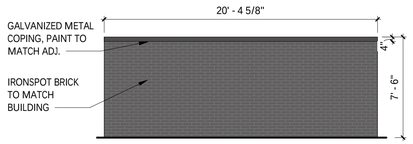
3 / F000 EXT ELEV - WEST
3/16" = 1'-0"



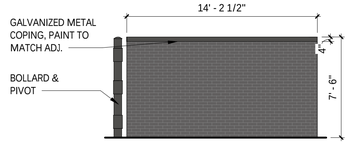
2 / F000 EXT ELEV - EAST
3/16" = 1'-0"

4 / F000 EXT ELEV - NORTH
3/16" = 1'-0"

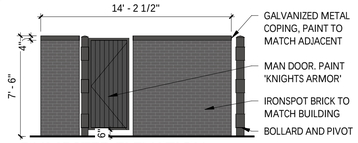
IRONSPOT BRICK HERRINGBONE ACCENT WALL



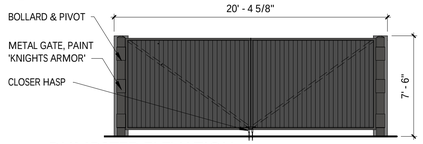
10 / F000 DUMPSTER ELEVATION
3/16" = 1'-0"



11 / F000 DUMPSTER ELEVATION
3/16" = 1'-0"

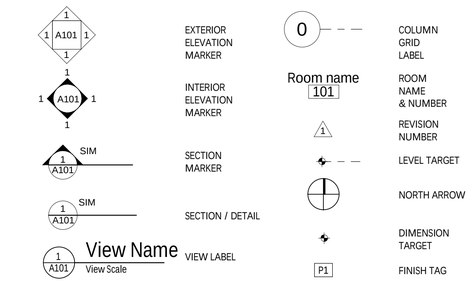


9 / F000 DUMPSTER ELEVATION
3/16" = 1'-0"



8 / F000 DUMPSTER ELEVATION
3/16" = 1'-0"

SYMBOLS LEGEND
12" = 1'-0"



GENERAL NOTES

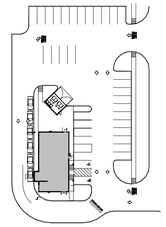
1. THIS FACADE PLAN IS FOR CONCEPTUAL PURPOSES ONLY. ALL BUILDING PLANS REQUIRE REVIEW AND APPROVAL BY DEVELOPMENT SERVICES.
2. ALL MECHANICAL UNITS SHALL BE SCREENED FROM PUBLIC VIEW AS REQUIRED BY THE ZONING ORDINANCE.
3. WHEN PERMITTED, EXPOSED UTILITY BOXES AND CONDUITS SHALL BE PAINTED TO MATCH THE BUILDING.
4. ALL SIGNAGE AREAS AND LOCATIONS ARE SUBJECT TO APPROVAL BY DEVELOPMENT SERVICES.
5. AN ONSITE MOCKUP OF THE BUILDING MATERIALS TO BE USED ON THE STRUCTURE SHALL BE INSTALLED AND REVIEWED BY THE PLANNING DIVISION. MATERIALS SHALL NOT BE PLACED ONT HE STRUCTURE UNTIL A GREEN TAG IS RECEIVED BY THE PLANNING DIVISION.
6. AN APPROVED FACADE PLAN SHALL BE POSED ONSITE AT ALL TIMES.

FINISH MATERIALS

STONE		**CORONADO STONE** SUMMIT GREY VENEER
BRICK		**ENDICOTT IRONSPOT** DARK IRONSPOT
STUCCO		3-STEP STUCCO PPG 'FOG'
MT-01		METAL PPG 'KNIGHTS ARMOR'
STRFNT		**KAWNEER** PERMAFLOUR CHARCOAL

NOTE: THREE COAT STUCCO IS APPLIED IN THREE LAYERS. 3/8-INCH THICK SCRATCH COAT, 3/8-INCH THICK BROWN COAT, AND APPROXIMATE 1/8 INCH THICK FINISH COAT. THE APPROXIMATELY 7/8-INCH THREE COAT SYSTEM IS APPLIED OVER AN APPROVED WEATHER-RESISTIVE BARRIER AND METAL LATH EITHER BY HAND USING A TROWEL OR BY MACHINE APPLICATION

KEY - SITE PLAN



0 8' 16' 24' 32'
Scale: 3/16" = 1'-0"

MATERIAL CALCULATION										
	NORTH		EAST		SOUTH		WEST		TOTAL	
MATERIAL	S.F.	%	S.F.	%	S.F.	%	S.F.	%	S.F.	%
TOTAL ELEVATION AREA	1319	100	762	100	1393	100	813	100	4287	100
NON-GLAZED DOORS AND WINDOWS	0	0%	28	3.67%	0	0%	0	0%	28	0.78%
GLAZED DOORS AND WINDOWS	90	6.82	9	1.18%	326	23.40%	255	31.37%	680	15.86%
TOTAL (WITHOUT GLAZED/NON-GLAZED...	1229	93.18	753	98.82%	1067	76.60%	558	68.63%	3607	84.14%
STONE	412	33.52%	232	30.81%	215	20.15%	180	32.26%	1039	28.81%
IRON SPOT BRICK - TO MATCH ADJACENT BUILDING	380	30.92%	237	31.47%	287	26.90%	64	11.47%	968	26.84%
STUCCO (3 STEP)	420	34.17%	250	33.20%	500	46.86%	272	48.75%	1442	39.98%
METAL ACCENT	17	1.38%	6	0.80%	65	6.09%	42	31.37%	130	3.60%

RESTAURANT WITH DRIVE-THRU
STONE CREEK BALANCE LTD
ABSTRACT NO 131

FACADE PLAN: #
SUBMITTAL DATE: 12/12/2022

ARCHITECT:
ROGUE ARCHITECTS
513 MAIN STREET, STE 300
FORT WORTH, TX 76102
CONTACT: ASHLEY MORELAND
T: (817) 820-0433

OWNER:
DUWEST REALTY
4403 N. CENTRAL EXPWY, #200
DALLAS, TX 75205
CONTACT: BOWEN HENDRIX
T: (214) 918-1804

ENGINEER
CLAYMOORE ENGINEERING
903 CENTRAL DRIVE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
T: (817) 281-0572

Consultant:
ARCHITECT OF RECORD
ROGUE ARCHITECTS
513 MAIN STREET, SUITE 300
FORT WORTH, TEXAS 76102
(817) 820-0433

SEAL

FACADE PLAN - 12/12/2022

DUWEST
CREATING, ENHANCING & PROTECTING VALUE

ROCKWALL NORTH SHELL
SH205 & QUAIL RUN ROAD
ROCKWALL, TX

Issue Record:

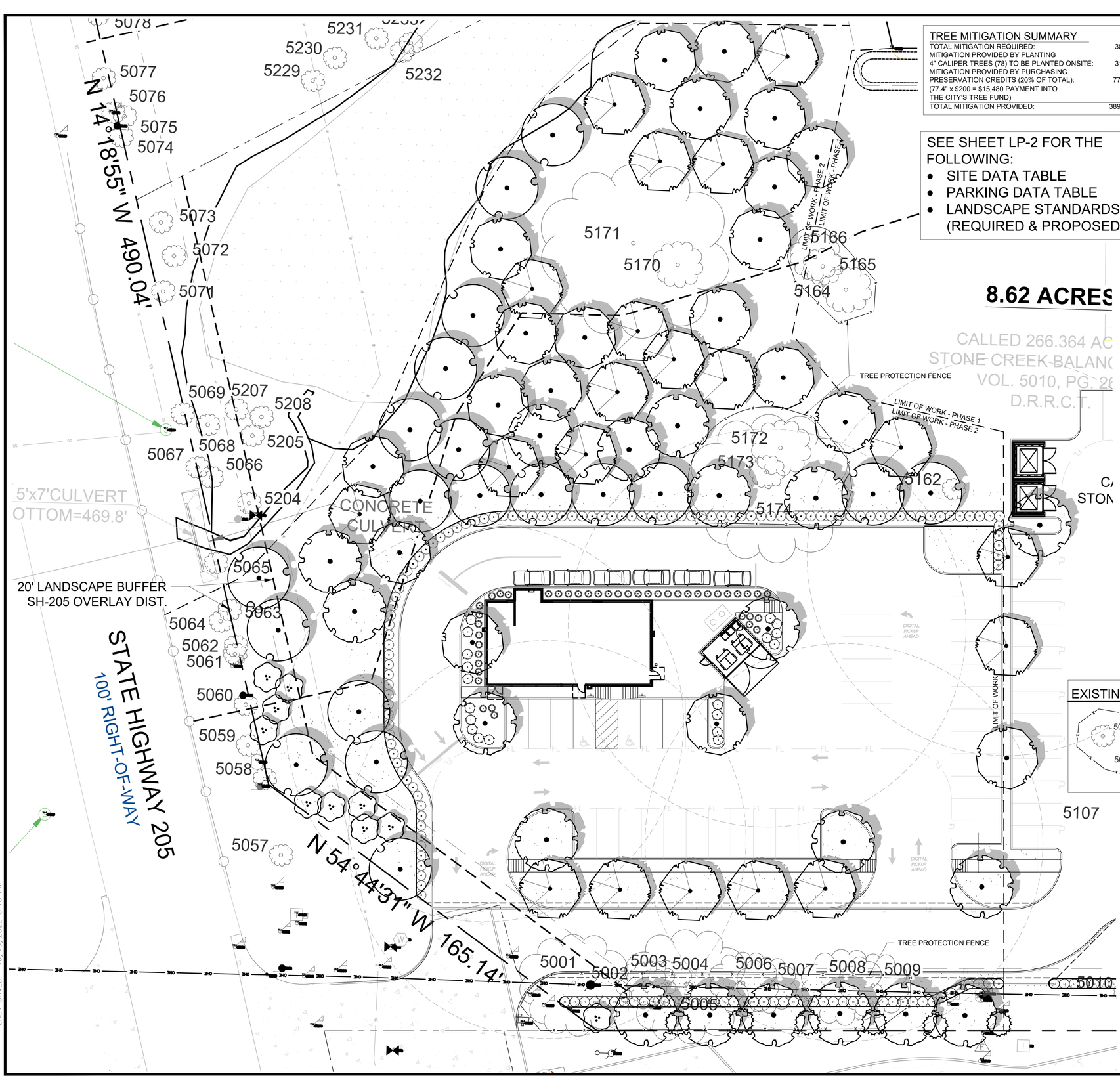
Revisions:

Drawn: T. GRANDORF
Checked: A. MORELAND

Project No.
ROGUE #22-0547

Contents:
FACADE PLAN

F000



TREE MITIGATION SUMMARY

TOTAL MITIGATION REQUIRED:	387"
MITIGATION PROVIDED BY PLANTING 4" CALIPER TREES (78) TO BE PLANTED ONSITE:	312"
MITIGATION PROVIDED BY PURCHASING PRESERVATION CREDITS (20% OF TOTAL): (77.4" x $200 = $15,480 PAYMENT INTO THE CITY'S TREE FUND)	77.4"
TOTAL MITIGATION PROVIDED:	389.4"

SEE SHEET LP-2 FOR THE FOLLOWING:
- SITE DATA TABLE
- PARKING DATA TABLE
- LANDSCAPE STANDARDS (REQUIRED & PROPOSED)

PLANT SCHEDULE

CANOPY TREES	QTY	BOTANICAL / COMMON NAME	CAL	SIZE
	20	ACER RUBRUM 'OCTOBER GLORY' OCTOBER GLORY MAPLE	4" CAL.	16'-18' HT
	19	QUERCUS POLYMORPHA MEXICAN WHITE OAK	4" CAL MIN	14`-16` HT
	19	QUERCUS VIRGINIANA LIVE OAK	4" CAL MIN	14`-16` HT
	20	ULMUS CRASSIFOLIA CEDAR ELM	4" CAL.	16`-18` HT

ACCENT TREES	QTY	BOTANICAL / COMMON NAME	CAL	SIZE
	10	CERCIS CANADENSIS EASTERN REDBUD 3-5 STEMS	2" CAL MIN	8` -10` HT
	6	ILEX VOMITORIA YAUPON HOLLY	2" CAL MIN	8` -10` HT

SHRUBS	QTY	BOTANICAL / COMMON NAME	CONT
	43	HESPERALOE PARVIFLORA RED YUCCA	3 GAL
	90	ILEX CORNUTA 'DWF. BURFORD' DWARF BURFORD HOLLY	5 GAL
	19	LANTANA X `NEW GOLD` NEW GOLD LANTANA	3 GAL
	57	MYRTUS COMMUNIS 'DON'S DWARF' DON'S DWARF WAX MYRTLE	5 GAL

GROUND COVER	QTY	BOTANICAL / COMMON NAME	CONT
	14,665 SF	CYNODON 'TIFWAY 419' TIFWAY 419 BERMUDA GRASS	SOD

NOTE: THE DEVELOPER SHALL ESTABLISH GRASS AND MAINTAIN THE SODDED AREA, INCLUDING WATERING, UNTIL A PERMANENT STAND OF GRASS IS OBTAINED AT WHICH TIME THE PROJECT WILL BE ACCEPTED BY THE CITY. A STAND OF GRASS SHALL CONSIST OF 75%-80% COVERAGE AND A MINIMUM O F 1" IN HEIGHT AS DETERMINED BY THE CITY.

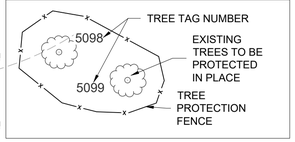
MULCHES

AFTER ALL PLANTING IS COMPLETE, CONTRACTOR SHALL INSTALL 3" THICK LAYER OF 1-1/2" SHREDDED WOOD MULCH, NATURAL (UNDYED), IN ALL PLANTING AREAS (EXCEPT FOR TURF AND SEEDED AREAS). CONTRACTOR SHALL SUBMIT SAMPLES OF ALL MULCHES TO LANDSCAPE ARCHITECT AND OWNER FOR APPROVAL PRIOR TO CONSTRUCTION. ABSOLUTELY NO EXPOSED GROUND SHALL BE LEFT SHOWING ANYWHERE ON THE PROJECT AFTER MULCH HAS BEEN INSTALLED (SUBJECT TO THE CONDITIONS AND REQUIREMENTS OF THE "GENERAL GRADING AND PLANTING NOTES" AND SPECIFICATIONS).

ROOT BARRIERS

THE CONTRACTOR SHALL INSTALL ROOT BARRIERS NEAR ALL NEWLY-PLANTED TREES THAT ARE LOCATED WITHIN FIVE (5) FEET OF PAVING OR CURBS. ROOT BARRIERS SHALL BE "CENTURY" OR "DEEP-ROOT" 24" DEEP PANELS (OR EQUAL). BARRIERS SHALL BE LOCATED IMMEDIATELY ADJACENT TO HARDSCAPE. INSTALL PANELS PER MANUFACTURER'S RECOMMENDATIONS. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR USE ROOT BARRIERS OF A TYPE THAT COMPLETELY ENCIRCLE THE ROOTBALL.

EXISTING TREE LEGEND



DUWEST ROCKWALL, TX

LEGAL DESCRIPTION AND OR ADDRESS:

STONE CREEK BALANCE LTD
ABSTRACT. NO 131
8.684 AC (378,275 SF)

OWNER:
DuWEST REALTY, LLC
4403 N.CENTRAL EXWAY SUITE #200
DALLAS, TX 75025
CONTACT: BOWEN HENDRIX
PH: 214.918.1804

APPLICANT:
CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
PH: 817.281.0572

CASE NUMBER
Z2022-003

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING AND ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____.

WITNESS OUR HANDS THIS ____ DAY OF _____.

PLANNING AND ZONING COMMISSION, CHAIRMAN

DIRECTOR OF PLANNING AND ZONING

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
1903 CENTRAL DR, SUITE #406
BEDFORD, TX 76021
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM

REGISTERED LANDSCAPE ARCHITECT
DARCY R. BRANDON
3423
STATE OF TEXAS

10/13/2022

DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

EVERGREEN DESIGN GROUP
(800) 680-6630
15455 Dallas Pkwy., Ste 600
Addison, TX 75001
www.EvergreenDesignGroup.com

LANDSCAPE PLANTING PLAN

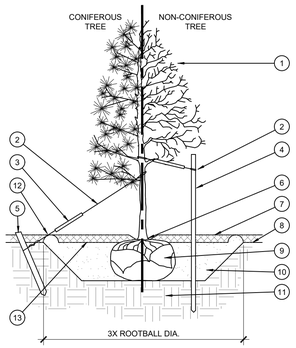
DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	10/13/2022

SHEET
LP-1

File No. 2022-002

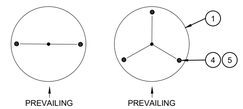
CASE # SP2022-042

PLOTTED BY: DARCY BRANDON
PLOT DATE: 10/13/2022 3:12 PM
LOCATION: C:\USERS\DARCY\DOCUMENTS\DBLA_PROJECTS\2022\EDG\CHIPOLTE DUWEST - ROCKWALL, TX\XREFS\2022-10-10 DUWEST ROCKWALL PHASE 2.DWG
LAST SAVED: 10/13/2022 3:10 PM



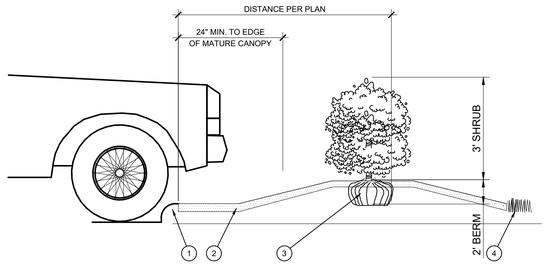
1. TREE CANOPY.
2. CINCH-TIES (24" BOX/2" CAL. TREES AND SMALLER) OR 12 GAUGE GALVANIZED WIRE WITH NYLON TREE STRAPS AT TREE AND STAKE (36" BOX/2.5" CAL. TREES AND LARGER). SECURE TIES OR STRAPS TO TRUNK JUST ABOVE LOWEST MAJOR BRANCHES.
3. 24" X 3/4" P.V.C. MARKERS OVER WIRES.
4. GREEN STEEL T-POSTS. EXTEND POSTS 12" MIN. INTO UNDISTURBED SOIL.
5. PRESSURE-TREATED WOOD DEADMAN, TWO PER TREE (MIN.). BURY OUTSIDE OF PLANTING PIT AND 18" MIN. INTO UNDISTURBED SOIL.
6. TRUNK FLARE.
7. MULCH, TYPE AND DEPTH PER PLANS. DO NOT PLACE MULCH WITHIN 6" OF TRUNK.
8. FINISH GRADE.
9. ROOT BALL.
10. BACKFILL. AMEND AND FERTILIZE ONLY AS RECOMMENDED IN SOIL FERTILITY ANALYSIS.
11. UNDISTURBED NATIVE SOIL.
12. 4" HIGH EARTHEN WATERING BASIN.
13. FINISH GRADE.

STAKING EXAMPLES (PLAN VIEW)



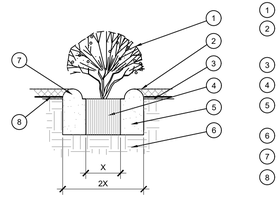
NOTES:
1. SCARIFY SIDES OF PLANTING PIT PRIOR TO SETTING TREE.
2. REMOVE EXCESS SOIL APPLIED ON TOP OF THE ROOTBALL THAT COVERS THE ROOT FLARE. THE PLANTING HOLE DEPTH SHALL BE SUCH THAT THE ROOTBALL RESTS ON UNDISTURBED SOIL, AND THE ROOT FLARE IS 2"-4" ABOVE FINISH GRADE.
3. FOR B&B TREES, CUT OFF BOTTOM 1/3 OF WIRE BASKET BEFORE PLACING TREE IN HOLE, CUT OFF AND REMOVE REMAINDER OF BASKET AFTER TREE IS SET IN HOLE. REMOVE ALL NYLON TIES, TWINE, ROPE, AND OTHER PACKING MATERIAL. REMOVE AS MUCH BURLAP FROM AROUND ROOTBALL AS IS PRACTICAL.
4. REMOVE ALL NURSERY STAKES AFTER PLANTING.
5. FOR TREES 36" BOX/2.5" CAL. AND LARGER, USE THREE STAKES OR DEADMEN (AS APPROPRIATE), SPACED EVENLY AROUND TREE.
6. STAKING SHALL BE TIGHT ENOUGH TO PREVENT TRUNK FROM BENDING, BUT LOOSE ENOUGH TO ALLOW SOME TRUNK MOVEMENT IN WIND.

A TREE PLANTING
SCALE: NOT TO SCALE



1. CURB.
2. MULCH LAYER.
3. PLANT.
4. TURF (WHERE SHOWN ON PLAN).

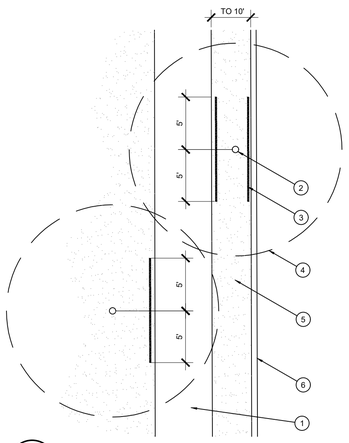
D PLANTING AT PARKING AREA
SCALE: NOT TO SCALE



1. SHRUB, PERENNIAL, OR ORNAMENTAL GRASS.
2. MULCH, TYPE AND DEPTH PER PLANS. PLACE NO MORE THAN 1" OF MULCH WITHIN 6" OF PLANT CENTER.
3. FINISH GRADE.
4. ROOT BALL.
5. BACKFILL. AMEND AND FERTILIZE ONLY AS RECOMMENDED IN SOIL FERTILITY ANALYSIS.
6. UNDISTURBED NATIVE SOIL.
7. 3" HIGH EARTHEN WATERING BASIN.
8. WEED FABRIC UNDER MULCH.

B SHRUB AND PERENNIAL PLANTING
SCALE: NTS

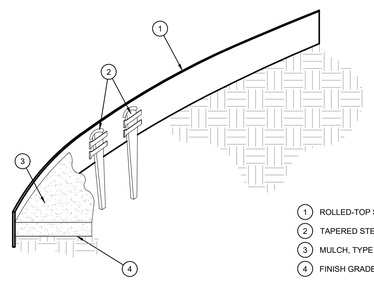
OPEN LANDSCAPE — PARKWAY OR ISLAND



1. TYPICAL WALKWAY OR PAVING
2. TREE TRUNK
3. LINEAR ROOT BARRIER MATERIAL. SEE PLANTING NOTES FOR TYPE AND MANUFACTURER. INSTALL PER MANUFACTURER'S SPECIFICATIONS.
4. TREE CANOPY
5. TYPICAL PLANTING AREA
6. TYPICAL CURB AND GUTTER

NOTES:
1) INSTALL ROOT BARRIERS NEAR ALL NEWLY-PLANTED TREES THAT ARE LOCATED WITHIN FIVE (5) FEET OF PAVING OR CURBS.
2) BARRIERS SHALL BE LOCATED IMMEDIATELY ADJACENT TO HARDSCAPE. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR USE ROOT BARRIERS OF A TYPE THAT COMPLETELY ENCIRCLE THE ROOTBALL.

F ROOT BARRIER - PLAN VIEW
SCALE: NOT TO SCALE



1. ROLLED-TOP STEEL EDGING PER PLANS.
2. TAPERED STEEL STAKES.
3. MULCH, TYPE AND DEPTH PER PLANS.
4. FINISH GRADE.

NOTES:
1) INSTALL EDGING SO THAT STAKES WILL BE ON INSIDE OF PLANTING BED.
2) BOTTOM OF EDGING SHALL BE BURIED A MINIMUM OF 1" BELOW FINISH GRADE.
3) TOP OF MULCH SHALL BE 1" LOWER THAN TOP OF EDGING.

D STEEL EDGING
SCALE: NOT TO SCALE

PARKING DATA TABLE

PARKING REQUIRED	
DRIVE-THRU RESTAURANT (2,325 SF) 1 SPACE / 100 SF	24 SPACES
STANDARD PARKING	33 SPACES
ADA PARKING	2 SPACES
PARKING PROVIDED	
TOTAL PARKING	33 SPACES
ADA PARKING	2 SPACES

SITE DATA TABLE

	PHASE 2 (CHIPOTLE)	PHASE 1 (EXISTING)	TOTAL
SITE AREA	8.684 AC / 378,275 SF	8.684 AC / 378,275 SF	8.684 AC / 378,275 SF
ZONING	PD-70 (Planned Development)	PD-70 (Planned Development) GR (General Retail Dist.)	PD-70
PROPOSED USE	DRIVE-THRU RESTAURANT	RETAIL/DRIVE-THRU RESTAURANT	RETAIL/DRIVE-THRU RESTAURANT
BUILDING SIZE	2,325 SF	BLDG. B - 10,000 SF BLDG. C - 10,000 SF	20,325 SF
PATIO AREA	332 SF	2,777 SF	3,109 SF
LOT COVERAGE	0.06%	5.2%	5.26%
FLOOR AREA RATIO	0.00:1	0.05:1	0.06:1
BUILDING HEIGHT	1-STORY	1-STORY	1-STORY
IMPERVIOUS AREA	29,064 SF (0.8%)	116,406 SF (30.8%)	145,138 SF (38.3%)
OPEN SPACE	8.62 AC (92%)	6.04 AC (69.2%)	5.4 AC (61.7%)

GENERAL GRADING AND PLANTING NOTES

1. BY SUBMITTING A PROPOSAL FOR THE LANDSCAPE PLANTING SCOPE OF WORK, THE CONTRACTOR CONFIRMS THAT HE HAS READ, AND WILL COMPLY WITH, THE ASSOCIATED NOTES, SPECIFICATIONS, AND DETAILS WITH THIS PROJECT.
2. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL EXISTING VEGETATION (EXCEPT WHERE NOTED TO REMAIN).
3. IN THE CONTEXT OF THESE PLANS, NOTES, AND SPECIFICATIONS, "FINISH GRADE" REFERS TO THE FINAL ELEVATION OF THE SOIL SURFACE (NOT TOP OF MULCH) AS INDICATED ON THE GRADING PLANS.
   a. BEFORE STARTING WORK, THE LANDSCAPE CONTRACTOR SHALL VERIFY THAT THE ROUGH GRADES OF ALL LANDSCAPE AREAS ARE WITHIN +/-0.1' OF FINISH GRADE. SEE SPECIFICATIONS FOR MORE DETAILED INSTRUCTION ON TURF AREA AND PLANTING BED PREPARATION.
   b. CONSTRUCT AND MAINTAIN FINISH GRADES AS SHOWN ON GRADING PLANS, AND CONSTRUCT AND MAINTAIN SLOPES AS RECOMMENDED BY THE GEOTECHNICAL REPORT. ALL LANDSCAPE AREAS SHALL HAVE POSITIVE DRAINAGE AWAY FROM STRUCTURES AT THE MINIMUM SLOPE SPECIFIED IN THE REPORT AND ON THE GRADING PLANS, AND AREAS OF POTENTIAL PONDING SHALL BE REGRADED TO BLEND IN WITH THE SURROUNDING GRADES AND ELIMINATE PONDING POTENTIAL.
   c. THE LANDSCAPE CONTRACTOR SHALL DETERMINE WHETHER OR NOT THE EXPORT OF ANY SOIL WILL BE NEEDED, TAKING INTO ACCOUNT THE ROUGH GRADE PROVIDED, THE AMOUNT OF SOIL AMENDMENTS TO BE ADDED (**BASED ON A SOIL TEST**, PER SPECIFICATIONS), AND THE FINISH GRADES TO BE ESTABLISHED.
   d. ENSURE THAT THE FINISH GRADE IN SHRUB AREAS IMMEDIATELY ADJACENT TO WALKS AND OTHER WALKING SURFACES, AFTER INSTALLING SOIL AMENDMENTS, IS 3" BELOW THE ADJACENT FINISH SURFACE, IN ORDER TO ALLOW FOR PROPER MULCH DEPTH. TAPER THE SOIL SURFACE TO MEET FINISH GRADE, AS SPECIFIED ON THE GRADING PLANS, AT APPROXIMATELY 18" AWAY FROM THE WALKS.
   e. ENSURE THAT THE FINISH GRADE IN TURF AREAS IMMEDIATELY ADJACENT TO WALKS AND OTHER WALKING SURFACES, AFTER INSTALLING SOIL AMENDMENTS, IS 1" BELOW THE FINISH SURFACE OF THE WALKS. TAPER THE SOIL SURFACE TO MEET FINISH GRADE, AS SPECIFIED ON THE GRADING PLANS, AT APPROXIMATELY 18" AWAY FROM THE WALKS.
   f. SHOULD ANY CONFLICTS AND/OR DISCREPANCIES ARISE BETWEEN THE GRADING PLANS, GEOTECHNICAL REPORT, THESE NOTES AND PLANS, AND ACTUAL CONDITIONS, THE CONTRACTOR SHALL IMMEDIATELY BRING SUCH ITEMS TO THE ATTENTION OF THE LANDSCAPE ARCHITECT, GENERAL CONTRACTOR, AND OWNER.
4. ALL PLANT LOCATIONS ARE DIAGRAMMATIC. ACTUAL LOCATIONS SHALL BE VERIFIED WITH THE LANDSCAPE ARCHITECT OR DESIGNER PRIOR TO PLANTING. THE LANDSCAPE CONTRACTOR SHALL ENSURE THAT ALL REQUIREMENTS OF THE PERMITTING AUTHORITY ARE MET (I.E., MINIMUM PLANT QUANTITIES, PLANTING METHODS, TREE PROTECTION METHODS, ETC.).
   a. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR DETERMINING PLANT QUANTITIES; PLANT QUANTITIES SHOWN ON LEGENDS AND CALLOUTS ARE FOR GENERAL INFORMATION ONLY. IN THE EVENT OF A DISCREPANCY BETWEEN THE PLAN AND THE PLANT LEGEND, THE PLANT QUANTITY AS SHOWN ON THE PLAN (FOR INDIVIDUAL SYMBOLS) OR CALLOUT (FOR GROUNDCOVER PATTERNS) SHALL TAKE PRECEDENCE.
   b. **NO SUBSTITUTIONS OF PLANT MATERIALS SHALL BE ALLOWED WITHOUT THE WRITTEN PERMISSION OF THE LANDSCAPE ARCHITECT.** IF SOME OF THE PLANTS ARE NOT AVAILABLE, THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT IN WRITING (VIA PROPER CHANNELS).
   c. THE CONTRACTOR SHALL, AT A MINIMUM, PROVIDE REPRESENTATIVE PHOTOS OF ALL PLANTS PROPOSED FOR THE PROJECT. THE CONTRACTOR SHALL ALLOW THE LANDSCAPE ARCHITECT AND THE OWNER/OWNER'S REPRESENTATIVE TO INSPECT, AND APPROVE OR REJECT, ALL PLANTS DELIVERED TO THE JOBSITE.
   REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS FOR SUBMITTALS.
5. THE CONTRACTOR SHALL MAINTAIN THE LANDSCAPE IN A HEALTHY CONDITION FOR 90 DAYS AFTER ACCEPTANCE BY THE OWNER. REFER TO SPECIFICATIONS FOR CONDITIONS OF ACCEPTANCE FOR THE START OF THE MAINTENANCE PERIOD, AND FOR FINAL ACCEPTANCE AT THE END OF THE MAINTENANCE PERIOD.
6. SEE SPECIFICATIONS AND DETAILS FOR FURTHER REQUIREMENTS.

IRRIGATION CONCEPT

1. AN AUTOMATIC IRRIGATION SYSTEM SHALL BE INSTALLED AND OPERATIONAL BY THE TIME OF FINAL INSPECTION. THE ENTIRE IRRIGATION SYSTEM SHALL BE INSTALLED BY A LICENSED AND QUALIFIED IRRIGATION CONTRACTOR.
2. THE IRRIGATION SYSTEM WILL OPERATE ON POTABLE WATER, AND THE SYSTEM WILL HAVE APPROPRIATE BACKFLOW PREVENTION DEVICES INSTALLED TO PREVENT CONTAMINATION OF THE POTABLE SOURCE.
3. ALL NON-TURF PLANTED AREAS SHALL BE DRIP IRRIGATED. SODDED AND SEEDED AREAS SHALL BE IRRIGATED WITH SPRAY OR ROTOR HEADS AT 100% HEAD-TO-HEAD COVERAGE.
4. ALL PLANTS SHARING SIMILAR HYDROZONE CHARACTERISTICS SHALL BE PLACED ON A VALVE DEDICATED TO PROVIDE THE NECESSARY WATER REQUIREMENTS SPECIFIC TO THAT HYDROZONE.
5. THE IRRIGATION SYSTEM SHALL BE DESIGNED AND INSTALLED, TO THE MAXIMUM EXTENT POSSIBLE, TO CONSERVE WATER BY USING THE FOLLOWING DEVICES AND SYSTEMS: MATCHED PRECIPITATION RATE TECHNOLOGY ON ROTOR AND SPRAY HEADS (WHEREVER POSSIBLE), RAIN SENSORS, AND MULTI-PROGRAM COMPUTERIZED IRRIGATION CONTROLLERS FEATURING SENSORY INPUT CAPABILITIES.
6. ALL IRRIGATION SHALL MEET THE REQUIREMENTS OF THE CITY OF ROCKWALL'S UDC (SUBSECTION 05.04, OF ARTICLE 08)

LANDSCAPE STANDARDS

05.01 LANDSCAPE BUFFERS - NON-RESIDENTIAL	
REQ. ABUTTING A PUBLIC RIGHT-OF-WAY:	20' WIDE LANDSCAPE BUFFER W/ GROUND COVER, BERM, AND SHRUBBERY 30" HIGH + 1 CANOPY TREE & 1 ACCENT TREE PER 50 LIN. FEET OF FRONTAGE
ST. HWY 205 OVERLAY DISTRICT: ±246' STREET FRONTAGE	20' WIDE BUFFER REQ. W/ 2 CANOPY + 4 ACCENT TREES PER 100 LIN. FT. OF FRONTAGE; GROUND COVER, BUILT-UP BERM AND SHRUBBERY ALONG ENTIRE FRONTAGE
REQUIRED PLANTING:	5 CANOPY TREES, 10 ACCENT TREES, BERM W/ SHRUBS
PROVIDED 20' BUFFER:	1 EXIST. CANOPY TREES + 4 NEW CANOPY TREES; 10 ACCENT TREES W/ BERM AND SHRUBS
05.02 LANDSCAPE SCREENING	
REQ. HEADLIGHT SCREENING	HEAD-IN PARKING ADJ. TO STREET SHALL INCORP. MIN. 2' BERM W/ MATURE EVERGREEN SHRUBS ALONG ENTIRE PARKING AREAS
SCREENING PROVIDED:	N/A
SCREENING FROM RESIDENTIAL:	N/A
05.03 LANDSCAPE REQUIREMENTS - COMMERCIAL (C) DISTRICT	
TOTAL SITE AREA (CHIPOLTE ONLY):	±64,104 SF
LANDSCAPE AREA REQUIRED TOTAL SITE:	12,821 SF (20%)
LANDSCAPE PROVIDED, TOTAL SITE:	± 27,515 (43%)
LOCATION OF LANDSCAPING:	MIN. 50% OF REQ. LANDSCAPING SHALL BE LOCATED IN THE FRONT OF & ALONG THE SIDE OF BUILDINGS W/ STREET FRONTAGE. 12,821 x 50% = 6,410.5 SF
LANDSCAPE AREAS IN FRONT & SIDES OF BUILDINGS:	14,825 SF (115.6%)
MIN. SIZE OF AREAS	ALL REQ. LANDSCAPING SHALL BE NO LESS THAN 5' WIDE AND A MIN. OF 25 SF IN AREA
DETENTION BASINS	NONE PROPOSED
PARKING LOT LANDSCAPING	MIN. 5% OR 200 SF OF LANDSCAPING, WHICHEVER IS GREATER, IN THE INTERIOR OF PARKING LOT AREA.
PROPOSED PARKING AREA:	±24,630 SF
REQ. PARKING AREA LANDSCAPING:	24,630 x 5% =1,232
PROPOSED PARKING LOT LANDSCAPING:	±2,217 SF (9%)
	REQ. PARKING SPACES MUST BE WITHIN 80' OF A CANOPY TREE TRUNK

DUWEST ROCKWALL

LEGAL DESCRIPTION AND OR ADDRESS:

STONE CREEK BALANCE LTD
ABSTRACT. NO 131
8.684 AC (378,275 SF)

OWNER:
DuWEST REALTY, LLC
4403 N.CENTRAL EXWAY SUITE #200
DALLAS, TX 75025
CONTACT: BOWEN HENDRIX
PH: 214.918.1804

APPLICANT:
CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
PH: 817.281.0572

CASE NUMBER
Z2022-003

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING AND ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____.

WITNESS OUR HANDS THIS ____ DAY OF _____.

_____
PLANNING AND ZONING COMMISSION, CHAIRMAN

_____
DIRECTOR OF PLANNING AND ZONING

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
1903 CENTRAL DR, SUITE #406
BEDFORD, TX 76021
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM

REGISTERED LANDSCAPE ARCHITECT — DARCY R. BRANDON — 3423 — STATE OF TEXAS

10/13/2022

DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

EVERGREEN DESIGN GROUP
(800) 680-6630
15455 Dallas Pkwy., Ste 600
Addison, TX 75001
www.EvergreenDesignGroup.com

LANDSCAPE PLANTING DETAILS & NOTES

DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	10/13/2022

SHEET
LP-2

File No. 2022-002

CASE # SP2022-042

PLOTTED BY: DARCY BRANDON
PLOT DATE: 10/13/2022 3:12 PM
LOCATION: C:\USERS\DARCY\DOCUMENTS\DBLA_PROJECTS\2022\EDG\CHIPOLTE DUWEST - ROCKWALL, TX\XREFS\2022-10-10 DUWEST ROCKWALL PHASE 2.DWG
LAST SAVED: 10/13/2022 3:10 PM

PLANTING SPECIFICATIONS

GENERAL

A. QUALIFICATIONS OF LANDSCAPE CONTRACTOR
   1. ALL LANDSCAPE WORK SHOWN ON THESE PLANS SHALL BE PERFORMED BY A SINGLE FIRM SPECIALIZING IN LANDSCAPE PLANTING.
   2. A LIST OF SUCCESSFULLY COMPLETED PROJECTS OF THIS TYPE, SIZE AND NATURE MAY BE REQUESTED BY THE OWNER FOR FURTHER QUALIFICATION MEASURES.
   3. THE LANDSCAPE CONTRACTOR SHALL HOLD A VALID NURSERY AND FLORAL CERTIFICATE ISSUED BY THE TEXAS DEPARTMENT OF AGRICULTURE, AS WELL AS OPERATE UNDER A COMMERCIAL PESTICIDE APPLICATOR LICENSE ISSUED BY EITHER THE TEXAS DEPARTMENT OF AGRICULTURE OR THE TEXAS STRUCTURAL PEST CONTROL BOARD.

B. SCOPE OF WORK
   1. WORK COVERED BY THESE SECTIONS INCLUDES THE FURNISHING AND PAYMENT OF ALL MATERIALS, LABOR, SERVICES, EQUIPMENT, LICENSES, TAXES AND ANY OTHER ITEMS THAT ARE NECESSARY FOR THE EXECUTION, INSTALLATION AND COMPLETION OF ALL WORK, SPECIFIED HEREIN AND / OR SHOWN ON THE LANDSCAPE PLANS, NOTES, AND DETAILS.
   2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS REQUIRED BY AUTHORITIES HAVING JURISDICTION OVER SUCH WORK, INCLUDING ALL INSPECTIONS AND PERMITS REQUIRED BY FEDERAL, STATE AND LOCAL AUTHORITIES IN SUPPLY, TRANSPORTATION AND INSTALLATION OF MATERIALS.
   3. THE LANDSCAPE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITY LINES (WATER, SEWER, ELECTRICAL, TELEPHONE, GAS, CABLE, TELEVISION, ETC.) PRIOR TO THE START OF ANY WORK.

PRODUCTS

A. ALL MANUFACTURED PRODUCTS SHALL BE NEW.
B. CONTAINER AND BALLED-AND-BURLAPPED PLANTS:
   1. FURNISH NURSERY-GROWN PLANTS COMPLYING WITH ANSI Z60.1-2014. PROVIDE WELL-SHAPED, FULLY BRANCHED, HEALTHY, VIGOROUS STOCK FREE OF DISEASE, INSECTS, EGGS, LARVAE, AND DEFECTS SUCH AS KNOTS, SUN SCALD, INJURIES, ABRASIONS, AND DISFIGUREMENT. ALL PLANTS WITHIN A SPECIES SHALL HAVE SIMILAR SIZE, AND SHALL BE OF A FORM TYPICAL FOR THE SPECIES. ALL TREES SHALL BE OBTAINED FROM SOURCES WITHIN 200 MILES OF THE PROJECT SITE, AND WITH SIMILAR CLIMACTIC CONDITIONS.
   2. ROOT SYSTEMS SHALL BE HEALTHY, DENSELY BRANCHED ROOT SYSTEMS, NON-POT-BOUND, FREE FROM ENCIRCLING AND/OR GIRDLING ROOTS, AND FREE FROM ANY OTHER ROOT DEFECTS (SUCH AS J-SHAPED ROOTS).
   3. TREES MAY BE PLANTED FROM CONTAINERS OR BALLED-AND-BURLAPPED (B&B), UNLESS SPECIFIED ON THE PLANTING LEGEND. BARE-ROOT TREES ARE NOT ACCEPTABLE.
   4. ANY PLANT DEEMED UNACCEPTABLE BY THE LANDSCAPE ARCHITECT OR OWNER SHALL BE IMMEDIATELY REMOVED FROM THE SITE AND SHALL BE REPLACED WITH AN ACCEPTBLE PLANT OF LIKE TYPE AND SIZE AT THE CONTRACTOR'S OWN EXPENSE. ANY PLANTS APPEARING TO BE UNHEALTHY, EVEN IF DETERMINED TO STILL BE ALIVE, SHALL NOT BE ACCEPTED. THE LANDSCAPE ARCHITECT AND OWNER SHALL BE THE SOLE JUDGES AS TO THE ACCEPTABILITY OF PLANT MATERIAL.
   5. ALL TREES SHALL BE STANDARD IN FORM, UNLESS OTHERWISE SPECIFIED. TREES WITH CENTRAL LEADERS WILL NOT BE ACCEPTED IF LEADER IS DAMAGED OR REMOVED. PRUNE ALL DAMAGED TWIGS AFTER PLANTING.
   6. CALIPER MEASUREMENTS FOR STANDARD (SINGLE TRUNK) TREES SHALL BE AS FOLLOWS: SIX INCHES ABOVE THE ROOT FLARE FOR TREES UP TO AND INCLUDING FOUR INCHES IN CALIPER, AND TWELVE INCHES ABOVE THE ROOT FLARE FOR TREES EXCEEDING FOUR INCHES IN CALIPER.
   7. MULTI-TRUNK TREES SHALL BE MEASURED BY THEIR OVERALL HEIGHT, MEASURED FROM THE TOP OF THE ROOT BALL. WHERE CALIPER MEASUREMENTS ARE USED, THE CALIPER SHALL BE CALCULATED AS ONE-HALF OF THE SUM OF THE CALIPER OF THE THREE LARGEST TRUNKS.
   8. ANY TREE OR SHRUB SHOWN TO HAVE EXCESS SOIL PLACED ON TOP OF THE ROOT BALL, SO THAT THE ROOT FLARE HAS BEEN COMPLETELY COVERED, SHALL BE REJECTED.
C. SOD: PROVIDE WELL-ROOTED SOD OF THE VARIETY NOTED ON THE PLANS. SOD SHALL BE CUT FROM HEALTHY, MATURE TURF WITH SOIL THICKNESS OF 3/4" TO 1". EACH PALLET OF SOD SHALL BE ACCOMPANIED BY A CERTIFICATE FROM SUPPLIER STATING THE COMPOSITION OF THE SOD.
D. TOPSOIL: SANDY TO CLAY LOAM TOPSOIL, FREE OF STONES LARGER THAN ½ INCH, FOREIGN MATTER, PLANTS, ROOTS, AND SEEDS.
E. COMPOST: WELL-COMPOSTED, STABLE, AND WEED-FREE ORGANIC MATTER, pH RANGE OF 5.5 TO 8; MOISTURE CONTENT 35 TO 55 PERCENT BY WEIGHT; 100 PERCENT PASSING THROUGH 3/4-INCH SIEVE; SOLUBLE SALT CONTENT OF 5 TO 10 DECISIEMENS/M; NOT EXCEEDING 0.5 PERCENT INERT CONTAMINANTS AND FREE OF SUBSTANCES TOXIC TO PLANTINGS. NO MANURE OR ANIMAL-BASED PRODUCTS SHALL BE USED.
F. FERTILIZER: GRANULAR FERTILIZER CONSISTING OF NITROGEN, PHOSPHORUS, POTASSIUM, AND OTHER NUTRIENTS IN PROPORTIONS, AMOUNTS, AND RELEASE RATES RECOMMENDED IN A SOIL REPORT FROM A QUALIFIED SOIL-TESTING AGENCY (SEE BELOW).
G. MULCH: SIZE AND TYPE AS INDICATED ON PLANS, FREE FROM DELETERIOUS MATERIALS AND SUITABLE AS A TOP DRESSING OF TREES AND SHRUBS.
H. TREE STAKING AND GUYING
   1. STAKES: 6' LONG GREEN METAL T-POSTS.
   2. GUY AND TIE WIRE: ASTM A 641, CLASS 1, GALVANIZED-STEEL WIRE, 2-STRAND, TWISTED, 0.106 INCH DIAMETER.
   3. STRAP CHAFING GUARD: REINFORCED NYLON OR CANVAS AT LEAST 1-1/2 INCH WIDE, WITH GROMMETS TO PROTECT TREE TRUNKS FROM DAMAGE.
I. STEEL EDGING: PROFESSIONAL STEEL EDGING, 14 GAUGE THICK X 4 INCHES WIDE, FACTORY PAINTED DARK GREEN. ACCEPTABLE MANUFACTURERS INCLUDE COL-MET OR APPROVED EQUAL.
J. PRE-EMERGENT HERBICIDES: ANY GRANULAR, NON-STAINING PRE-EMERGENT HERBICIDE THAT IS LABELED FOR THE SPECIFIC ORNAMENTALS OR TURF ON WHICH IT WILL BE UTILIZED. PRE-EMERGENT HERBICIDES SHALL BE APPLIED PER THE MANUFACTURER'S LABELED RATES.

METHODS

A. SOIL PREPARATION
   1. BEFORE STARTING WORK, THE LANDSCAPE CONTRACTOR SHALL VERIFY THAT THE GRADE OF ALL LANDSCAPE AREAS ARE WITHIN +/-0.1" OF FINISH GRADE. THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY SHOULD ANY DISCREPANCIES EXIST.
   2. SOIL TESTING:
      a. AFTER FINISH GRADES HAVE BEEN ESTABLISHED, CONTRACTOR SHALL HAVE SOIL SAMPLES FROM THE PROJECT'S LANDSCAPE AREAS TESTED BY AN ESTABLISHED SOIL TESTING LABORATORY. EACH SAMPLE SUBMITTED TO THE LAB SHALL CONTAIN NO LESS THAN ONE QUART OF SOIL, TAKEN FROM BETWEEN THE SOIL SURFACE AND 6" DEPTH. IF NO SAMPLE LOCATIONS ARE INDICATED ON THE PLANS, THE CONTRACTOR SHALL TAKE A MINIMUM OF THREE SAMPLES FROM VARIOUS REPRESENTATIVE LOCATIONS FOR TESTING.
      b. THE CONTRACTOR SHALL HAVE THE SOIL TESTING LABORATORY PROVIDE RESULTS FOR THE FOLLOWING: SOIL TEXTURAL CLASS, GENERAL SOIL FERTILITY, pH, ORGANIC MATTER CONTENT, SALT (CEC), LIME, SODIUM ADSORPTION RATIO (SAR) AND BORON CONTENT.
      c. THE CONTRACTOR SHALL ALSO SUBMIT THE PROJECT'S PLANT LIST TO THE LABORATORY ALONG WITH THE SOIL SAMPLES.
      d. THE SOIL REPORT PRODUCED BY THE LABORATORY SHALL CONTAIN RECOMMENDATIONS FOR THE FOLLOWING (AS APPROPRIATE): SEPARATE SOIL PREPARATION AND BACKFILL MIX RECOMMENDATIONS FOR GENERAL ORNAMENTAL PLANTS, XERIC PLANTS, TURF, AND NATIVE SEED, AS WELL AS PRE-PLANT FERTILIZER APPLICATIONS AND RECOMMENDATIONS FOR ANY OTHER SOIL RELATED ISSUES. THE REPORT SHALL ALSO PROVIDE A FERTILIZER PROGRAM FOR THE ESTABLISHMENT PERIOD AND FOR LONG-TERM MAINTENANCE.
   3. THE CONTRACTOR SHALL INSTALL SOIL AMENDMENTS AND FERTILIZERS PER THE SOILS REPORT RECOMMENDATIONS. ANY CHANGE IN COST DUE TO THE SOIL REPORT RECOMMENDATIONS, EITHER INCREASE OR DECREASE, SHALL BE SUBMITTED TO THE OWNER WITH THE REPORT.
   4. FOR BIDDING PURPOSES ONLY, THE SOIL PREPARATION SHALL CONSIST OF THE FOLLOWING:
      a. TURF: INCORPORATE THE FOLLOWING AMENDMENTS INTO THE TOP 8" OF SOIL BY MEANS OF ROTOTILLING AFTER CROSS-RIPPING:
         i. NITROGEN STABILIZED ORGANIC AMENDMENT - 4 CU. YDS. PER 1,000 S.F.
         ii. PREPLANT TURF FERTILIZER (10-20-10 OR SIMILAR, SLOW RELEASE, ORGANIC) - 15 LBS PER 1,000 S.F.
         iii. "CLAY BUSTER" OR EQUAL - USE MANUFACTURER'S RECOMMENDED RATE
      b. TREES, SHRUBS, AND PERENNIALS: INCORPORATE THE FOLLOWING AMENDMENTS INTO THE TOP 8" OF SOIL BY MEANS OF ROTOTILLING AFTER CROSS-RIPPING:
         i. NITROGEN STABILIZED ORGANIC AMENDMENT - 4 CU. YDS. PER 1,000 S.F.
         ii. 12-12-12 FERTILIZER (OR SIMILAR, ORGANIC, SLOW RELEASE) - 10 LBS. PER CU. YD.
         iii. "CLAY BUSTER" OR EQUAL - USE MANUFACTURER'S RECOMMENDED RATE
         iv. IRON SULPHATE - 2 LBS. PER CU. YD.
   5. IN THE CONTEXT OF THESE PLANS, NOTES, AND SPECIFICATIONS, "FINISH GRADE" REFERS TO THE FINAL ELEVATION OF THE SOIL SURFACE (NOT TOP OF MULCH) AS INDICATED ON THE GRADING PLANS.
      a. BEFORE STARTING WORK, THE LANDSCAPE CONTRACTOR SHALL VERIFY THAT THE ROUGH GRADES OF ALL LANDSCAPE AREAS ARE WITHIN +/-0.1' OF FINISH GRADE. SEE SPECIFICATIONS FOR MORE DETAILED INSTRUCTION ON TURF AREA AND PLANTING BED PREPARATION.
      b. CONSTRUCT AND MAINTAIN FINISH GRADES AS SHOWN ON GRADING PLANS, AND CONSTRUCT AND MAINTAIN SLOPES AS RECOMMENDED BY THE GEOTECHNICAL REPORT. ALL LANDSCAPE AREAS SHALL HAVE POSITIVE DRAINAGE AWAY FROM STRUCTURES AT THE MINIMUM SLOPE SPECIFIED IN THE REPORT AND ON THE GRADING PLANS, AND AREAS OF POTENTIAL PONDING SHALL BE REGRADED TO BLEND IN WITH THE SURROUNDING GRADES AND ELIMINATE PONDING POTENTIAL.
      c. THE LANDSCAPE CONTRACTOR SHALL DETERMINE WHETHER OR NOT THE EXPORT OF ANY SOIL WILL BE NEEDED, TAKING INTO ACCOUNT THE ROUGH GRADE PROVIDED, THE AMOUNT OF SOIL AMENDMENTS TO BE ADDED (**BASED ON A SOIL TEST**, PER SPECIFICATIONS), AND THE FINISH GRADES TO BE ESTABLISHED.
      d. ENSURE THAT THE FINISH GRADE IN SHRUB AREAS IMMEDIATELY ADJACENT TO WALKS AND OTHER WALKING SURFACES, AFTER INSTALLING SOIL AMENDMENTS, IS 3" BELOW THE ADJACENT FINISH SURFACE, IN ORDER TO ALLOW FOR PROPER MULCH DEPTH. TAPER THE SOIL SURFACE TO MEET FINISH GRADE, AS SPECIFIED ON THE GRADING PLANS, AT APPROXIMATELY 18" AWAY FROM THE WALKS.
      e. ENSURE THAT THE FINISH GRADE IN TURF AREAS IMMEDIATELY ADJACENT TO WALKS AND OTHER WALKING SURFACES, AFTER INSTALLING SOIL AMENDMENTS, IS 1" BELOW THE FINISH SURFACE OF THE WALKS. TAPER THE SOIL SURFACE TO MEET FINISH GRADE, AS SPECIFIED ON THE GRADING PLANS, AT APPROXIMATELY 18" AWAY FROM THE WALKS.
      f. SHOULD ANY CONFLICTS AND/OR DISCREPANCIES ARISE BETWEEN THE GRADING PLANS, GEOTECHNICAL REPORT, THESE NOTES AND PLANS, AND ACTUAL CONDITIONS, THE CONTRACTOR SHALL IMMEDIATELY BRING SUCH ITEMS TO THE ATTENTION OF THE LANDSCAPE ARCHITECT, GENERAL CONTRACTOR, AND OWNER.
   6. ONCE SOIL PREPARATION IS COMPLETE, THE LANDSCAPE CONTRACTOR SHALL ENSURE THAT THERE ARE NO DEBRIS, TRASH, OR STONES LARGER THAN 1" REMAINING IN THE TOP 6" OF SOIL.

B. SUBMITTALS
   1. THE CONTRACTOR SHALL PROVIDE SUBMITTALS AND SAMPLES, IF REQUIRED, TO THE LANDSCAPE ARCHITECT, AND RECEIVE APPROVAL IN WRITING FOR SUCH SUBMITTALS BEFORE WORK COMMENCES.
   2. SUBMITTALS SHALL INCLUDE PHOTOS OF PLANTS WITH A RULER OR MEASURING STICK FOR SCALE, PHOTOS OR SAMPLES OF ANY REQUIRED MULCHES, AND SOIL TEST RESULTS AND PREPARATION RECOMMENDATIONS FROM THE TESTING LAB (INCLUDING COMPOST AND FERTILIZER RATES AND TYPES, AND OTHER AMENDMENTS FOR TREE/SHRUB, TURF, AND SEED AREAS AS MAY BE APPROPRIATE).
   3. SUBMITTALS SHALL ALSO INCLUDE MANUFACTURER CUT SHEETS FOR PLANTING ACCESSORIES SUCH AS TREE STAKES AND TIES, EDGING, AND LANDSCAPE FABRICS (IF ANY).
   4. WHERE MULTIPLE ITEMS ARE SHOWN ON A PAGE, THE CONTRACTOR SHALL CLEARLY INDICATE THE ITEM BEING CONSIDERED.
C. GENERAL PLANTING
   1. REMOVE ALL NURSERY TAGS AND STAKES FROM PLANTS.
   2. EXCEPT IN AREAS TO BE PLANTED WITH ORNAMENTAL GRASSES, APPLY PRE-EMERGENT HERBICIDES AT THE MANUFACTURER'S RECOMMENDED RATE.
   3. TRENCHING NEAR EXISTING TREES:
      a. CONTRACTOR SHALL NOT DISTURB ROOTS 1-1/2" AND LARGER IN DIAMETER WITHIN THE CRITICAL ROOT ZONE (CRZ) OF EXISTING TREES, AND SHALL EXERCISE ALL POSSIBLE CARE AND PRECAUTIONS TO AVOID INJURY TO TREE ROOTS, TRUNKS, AND BRANCHES. THE CRZ IS DEFINED AS A CIRCULAR AREA EXTENDING OUTWARD FROM THE TREE TRUNK, WITH A RADIUS EQUAL TO 1' FOR EVERY 1" OF TRUNK DIAMETER-AT-BREAST-HEIGHT (4.5' ABOVE THE AVERAGE GRADE AT THE TRUNK).
      b. ALL EXCAVATION WITHIN THE CRZ SHALL BE PERFORMED USING HAND TOOLS. NO MACHINE EXCAVATION OR TRENCHING OF ANY KIND SHALL BE ALLOWED WITHIN THE CRZ.
      c. ALTER ALIGNMENT OF PIPE TO AVOID TREE ROOTS 1-1/2" AND LARGER IN DIAMETER. WHERE TREE ROOTS 1-1/2" AND LARGER IN DIAMETER ARE ENCOUNTERED IN THE FIELD, TUNNEL UNDER SUCH ROOTS. WRAP EXPOSED ROOTS WITH SEVERAL LAYERS OF BURLAP AND KEEP MOIST. CLOSE ALL TRENCHES WITHIN THE CANOPY DRIP LINES WITHIN 24 HOURS.
      d. ALL SEVERED ROOTS SHALL BE HAND PRUNED WITH SHARP TOOLS AND ALLOWED TO AIR-DRY. DO NOT USE ANY SORT OF SEALERS OR WOUND PAINTS.
D. TREE PLANTING
   1. TREE PLANTING HOLES SHALL BE EXCAVATED TO MINIMUM WIDTH OF TWO TIMES THE WIDTH OF THE ROOTBALL, AND TO A DEPTH EQUAL TO THE DEPTH OF THE ROOTBALL LESS TWO TO FOUR INCHES.
   2. SCARIFY THE SIDES AND BOTTOM OF THE PLANTING HOLE PRIOR TO THE PLACEMENT OF THE TREE. REMOVE ANY GLAZING THAT MAY HAVE BEEN CAUSED DURING THE EXCAVATION OF THE HOLE.
   3. FOR CONTAINER AND BOX TREES, TO REMOVE ANY POTENTIALLY GIRDLING ROOTS AND OTHER ROOT DEFECTS, THE CONTRACTOR SHALL SHAVE A 1" LAYER OFF OF THE SIDES AND BOTTOM OF THE ROOTBALL OF ALL TREES JUST BEFORE PLACING INTO THE PLANTING PIT. DO NOT "TEASE" ROOTS OUT FROM THE ROOTBALL.
   4. INSTALL THE TREE ON UNDISTURBED SUBGRADE SO THAT THE TOP OF THE ROOTBALL IS TWO TO FOUR INCHES ABOVE THE SURROUNDING GRADE.
   5. BACKFILL THE TREE HOLE UTILIZING THE EXISTING TOPSOIL FROM ON-SITE. ROCKS LARGER THAN 1" DIA. AND ALL OTHER DEBRIS SHALL BE REMOVED FROM THE SOIL PRIOR TO THE BACKFILL. SHOULD ADDITIONAL SOIL BE REQUIRED TO ACCOMPLISH THIS TASK, USE STORED TOPSOIL FROM ON-SITE OR IMPORT ADDITIONAL TOPSOIL FROM OFF-SITE AT NO ADDITIONAL COST TO THE OWNER. IMPORTED TOPSOIL SHALL BE OF SIMILAR TEXTURAL CLASS AND COMPOSITION IN THE ON-SITE SOIL.
   6. TREES SHALL NOT BE STAKED UNLESS LOCAL CONDITIONS (SUCH AS HEAVY WINDS OR SLOPES) REQUIRE STAKES TO KEEP TREES UPRIGHT. SHOULD STAKING BE REQUIRED, THE TOTAL NUMBER OF TREE STAKES (BEYOND THE MINIMUMS LISTED BELOW) WILL BE LEFT TO THE LANDSCAPE CONTRACTOR'S DISCRETION. SHOULD ANY TREES FALL OR LEAN, THE LANDSCAPE CONTRACTOR SHALL STRAIGHTEN THE TREE, OR REPLACE IT SHOULD IT BECOME DAMAGED. TREE STAKING SHALL ADHERE TO THE FOLLOWING GUIDELINES:
      a. 1"-2" TREES — TWO STAKES PER TREE
      b. 2-1/2"-4" TREES — THREE STAKES PER TREE
      c. TREES OVER 4" CALIPER — GUY AS NEEDED
      d. MULTI-TRUNK TREES — THREE STAKES PER TREE MINIMUM, QUANTITY AND POSITIONS AS NEEDED TO STABILIZE THE TREE
      e. MULTI-TRUNK TREES — THREE STAKES PER TREE MINIMUM, QUANTITY AND POSITIONS AS NEEDED TO STABILIZE THE TREE
   7. UPON COMPLETION OF PLANTING, CONSTRUCT AN EARTH WATERING BASIN AROUND THE TREE. COVER THE INTERIOR OF THE TREE RING WITH THE WEED BARRIER CLOTH AND TOPDRESS WITH MULCH (TYPE AND DEPTH PER PLANS).
E. SHRUB, PERENNIAL, AND GROUNDCOVER PLANTING
   1. DIG THE PLANTING HOLES TWICE AS WIDE AND 2" LESS DEEP THAN EACH PLANT'S ROOTBALL. INSTALL THE PLANT IN THE HOLE. BACKFILL AROUND THE PLANT WITH SOIL AMENDED PER SOIL TEST RECOMMENDATIONS.
   2. INSTALL THE WEED BARRIER CLOTH, OVERLAPPING IT AT THE ENDS. UTILIZE STEEL STAPLES TO KEEP THE WEED BARRIER CLOTH IN PLACE.
   3. WHEN PLANTING IS COMPLETE, INSTALL MULCH (TYPE AND DEPTH PER PLANS) OVER ALL PLANTING BEDS, COVERING THE ENTIRE PLANTING AREA.
F. SODDING
   1. SOD VARIETY TO BE AS SPECIFIED ON THE LANDSCAPE PLAN.
   2. LAY SOD WITHIN 24 HOURS FROM THE TIME OF STRIPPING. DO NOT LAY IF THE GROUND IS FROZEN.
   3. LAY THE SOD TO FORM A SOLID MASS WITH TIGHTLY FITTED JOINTS. BUTT ENDS AND SIDES OF SOD STRIPS - DO NOT OVERLAP. STAGGER STRIPS TO OFFSET JOINTS IN ADJACENT COURSES.
   4. ROLL THE SOD TO ENSURE GOOD CONTACT OF THE SOD'S ROOT SYSTEM WITH THE SOIL UNDERNEATH.
   5. WATER THE SOD THOROUGHLY WITH A FINE SPRAY IMMEDIATELY AFTER PLANTING TO OBTAIN AT LEAST SIX INCHES OF PENETRATION INTO THE SOIL BELOW THE SOD.
G. MULCH
   1. INSTALL MULCH TOPDRESSING, TYPE AND DEPTH PER MULCH NOTE, IN ALL PLANTING AREAS AND TREE RINGS.
   2. DO NOT INSTALL MULCH WITHIN 6" OF TREE ROOT FLARE AND WITHIN 24" OF HABITABLE STRUCTURES, EXCEPT AS MAY BE NOTED ON THESE PLANS. MULCH COVER WITHIN 6" OF CONCRETE WALKS AND CURBS SHALL NOT PROTRUDE ABOVE THE FINISH SURFACE OF THE WALKS AND CURBS. MULCH COVER WITHIN 12" OF WALLS SHALL BE AT LEAST 3" LOWER THAN THE TOP OF WALL.
H. CLEAN UP
   1. DURING LANDSCAPE PREPARATION AND PLANTING, KEEP ALL PAVEMENT CLEAN AND ALL WORK AREAS IN A NEAT, ORDERLY CONDITION.
   2. DISPOSED LEGALLY OF ALL EXCAVATED MATERIALS OFF THE PROJECT SITE.
I. INSPECTION AND ACCEPTANCE
   1. UPON COMPLETION OF THE WORK, THE LANDSCAPE CONTRACTOR SHALL PROVIDE THE SITE CLEAN, FREE OF DEBRIS AND TRASH, AND SUITABLE FOR USE AS INTENDED. THE LANDSCAPE CONTRACTOR SHALL THEN REQUEST AN INSPECTION BY THE OWNER TO DETERMINE FINAL ACCEPTABILITY.
   2. WHEN THE INSPECTED PLANTING WORK DOES NOT COMPLY WITH THE CONTRACT DOCUMENTS, THE LANDSCAPE CONTRACTOR SHALL REPLACE AND/OR REPAIR THE REJECTED WORK TO THE OWNER'S SATISFACTION WITHIN 24 HOURS.
   3. THE LANDSCAPE MAINTENANCE PERIOD WILL NOT COMMENCE UNTIL THE LANDSCAPE WORK HAS BEEN RE-INSPECTED BY THE OWNER AND FOUND TO BE ACCEPTABLE. AT THAT TIME, A WRITTEN NOTICE OF FINAL ACCEPTANCE WILL BE ISSUED BY THE OWNER, AND THE MAINTENANCE AND GUARANTEE PERIODS WILL COMMENCE.
J. LANDSCAPE MAINTENANCE
   1. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL WORK SHOWN ON THESE PLANS FOR 90 DAYS BEYOND FINAL ACCEPTANCE OF ALL LANDSCAPE WORK BY THE OWNER. LANDSCAPE MAINTENANCE SHALL INCLUDE WEEKLY SITE VISITS FOR THE FOLLOWING ACTIONS (AS APPROPRIATE): PROPER PRUNING, RESTAKING OF TREES, RESETTING OF PLANTS THAT HAVE SETTLED, MOWING AND AERATION OF LAWNS, WEEDING, TREATING FOR INSECTS AND DISEASES,REPLACEMENT OF MULCH, REMOVAL OF LITTER, REPAIRS TO THE IRRIGATION SYSTEM DUE TO FAULTY PARTS AND/OR WORKMANSHIP, AND THE APPROPRIATE WATERING OF ALL PLANTINGS. THE LANDSCAPE CONTRACTOR SHALL MAINTAIN THE IRRIGATION SYSTEM IN PROPER WORKING ORDER, WITH SCHEDULING ADJUSTMENTS BY SEASON TO MAXIMIZE WATER CONSERVATION.
   2. SHOULD SEEDED AND/OR SODDED AREAS NOT BE COVERED BY AN AUTOMATIC IRRIGATION SYSTEM, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR WATERING THESE AREAS AND OBTAINING A FULL, HEALTHY STAND OF PLANTS AT NO ADDITIONAL COST TO THE OWNER.
   3. TO ACHIEVE FINAL ACCEPTANCE AT THE END OF THE MAINTENANCE PERIOD, ALL OF THE FOLLOWING CONDITIONS MUST OCCUR:
      a. THE LANDSCAPE SHALL SHOW ACTIVE, HEALTHY GROWTH (WITH EXCEPTIONS MADE FOR SEASONAL DORMANCY). ALL PLANTS NOT MEETING THIS CONDITION SHALL BE REJECTED AND REPLACED BY HEALTHY PLANT MATERIAL PRIOR TO FINAL ACCEPTANCE.
      b. ALL HARDSCAPE SHALL BE CLEANED PRIOR TO FINAL ACCEPTANCE.
      c. SODDED AREAS MUST BE ACTIVELY GROWING AND MUST REACH A MINIMUM HEIGHT OF 1 1/2 INCHES BEFORE FIRST MOWING. BARE AREAS LARGER THAN TWELVE SQUARE INCHES MUST BE RESODDED (AS APPROPRIATE) PRIOR TO FINAL ACCEPTANCE. ALL SODDED TURF SHALL BE NEATLY MOWED.
K. WARRANTY PERIOD, PLANT GUARANTEE AND REPLACEMENTS
   1. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL TREES, SHRUBS, PERENNIALS, SOD, AND IRRIGATION SYSTEMS FOR A PERIOD OF ONE YEAR FROM THE DATE OF THE OWNER'S FINAL ACCEPTANCE (90 DAYS FOR ANNUAL PLANTS). THE CONTRACTOR SHALL REPLACE, AT HIS OWN EXPENSE AND TO THE SATISFACTION OF THE OWNER, ANY PLANTS WHICH DIE IN THAT TIME, OR REPAIR ANY PORTIONS OF THE IRRIGATION SYSTEM WHICH OPERATE IMPROPERLY.
   2. AFTER THE INITIAL MAINTENANCE PERIOD AND DURING THE GUARANTEE PERIOD, THE LANDSCAPE CONTRACTOR SHALL ONLY BE RESPONSIBLE FOR REPLACEMENT OF PLANTS WHEN PLANT DEATH CANNOT BE ATTRIBUTED DIRECTLY TO OVERWATERING OR OTHER DAMAGE BY HUMAN ACTIONS.
L. PROVIDE A MINIMUM OF (2) COPIES OF RECORD DRAWINGS TO THE OWNER UPON COMPLETION OF WORK. A RECORD DRAWING IS A RECORD OF ALL CHANGES THAT OCCURRED IN THE FIELD AND THAT ARE DOCUMENTED THROUGH CHANGE ORDERS, ADDENDA, OR CONTRACTOR/CONSULTANT DRAWING MARKUPS.

DUWEST ROCKWALL, TX

LEGAL DESCRIPTION AND OR ADDRESS:

STONE CREEK BALANCE LTD
ABSTRACT. NO 131
8.684 AC (378,275 SF)

OWNER:
DuWEST REALTY, LLC
4403 N.CENTRAL EXWAY SUITE #200
DALLAS, TX 75025
CONTACT: BOWEN HENDRIX
PH: 214.918.1804

APPLICANT:
CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
PH: 817.281.0572

CASE NUMBER
Z2022-003

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING AND ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____.

WITNESS OUR HANDS THIS ____ DAY OF _____.

_____
PLANNING AND ZONING COMMISSION, CHAIRMAN

_____
DIRECTOR OF PLANNING AND ZONING

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
1903 CENTRAL DR, SUITE #406
BEDFORD, TX 76021
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM

REGISTERED LANDSCAPE ARCHITECT
DARCY R. BRANDON
3423
STATE OF TEXAS

10/13/2022

EVERGREEN DESIGN GROUP
(800) 680-6630
15455 Dallas Pkwy., Ste 600
Addison, TX 75001
www.EvergreenDesignGroup.com

DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

LANDSCAPE PLANTING SPECIFICATIONS

DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	10/13/2022

SHEET
LP-3

File No. 2022-002

CASE # SP2022-042

PLOTTED BY: DARCY BRANDON
PLOT DATE: 10/13/2022 3:12 PM
LOCATION: C:\USERS\DARCY\DOCUMENTS\DBLA_PROJECTS\2022\LDG\CHIPOLTE DUWEST - ROCKWALL, TX\XREFS\2022-10-10 DUWEST ROCKWALL PHASE 2.DWG
LAST SAVED: 10/13/2022 3:10 PM

NOTE: TREE PROTECTION FOR ANY PRESERVED OR RELOCATED TREES MUST BE PROVIDED PER DETAILS AND SPECIFICATIONS ON SHEET TD-2. THESE MUST BE UP PRIOR TO THE COMMENCEMENT OF ANY WORK AND MAINTAINED THROUGHOUT CONSTRUCTION.

NOTE: ALL TREE TRIMMING MUST BE APPROVED BY THE OWNER AND LOCAL JURISDICTION PRIOR TO COMMENCEMENT OF WORK. ALL TREE TRIMMING MUST BE DONE BY AN ISA CERTIFIED ARBORIST IN ACCORDANCE WITH LOCAL TREE PRESERVATION ORDINANCE.

N 14°18'55" W 490.04'

96.09'

8.62 ACRES

CALLED 266.364 AC
STONE CREEK BALANC
VOL. 5010, PG. 2
D.R.R.C.T.

LIMIT OF WORK - PHASE 2
LIMIT OF WORK - PHASE 1
LIMIT OF WORK - PHASE 1
LIMIT OF WORK - PHASE 2
LIMIT OF WORK

CULVERT
DM=469.8'

CONCRETE CULVERT

STATE HIGHWAY 205
100' RIGHT-OF-WAY

N 54°44'31" W 165.14'

DIGITAL GROUP AHEAD

SITE DATA TABLE

	PHASE 2 (CHIPOTLE)	PHASE 1 (EXISTING)	TOTAL
SITE AREA	8.684 AC / 378,275 SF	8.684 AC / 378,275 SF	8.684 AC / 378,275 SF
ZONING	PD-70 (Planned Development)	PD-70 (Planned Development) GR (General Retail Dist.)	PD-70
PROPOSED USE	DRIVE-THRU RESTAURANT	RETAIL/DRIVE-THRU RESTAURANT	RETAIL/DRIVE-THRU RESTAURANT
BUILDING SIZE	2,325 SF	BLDG. B - 10,000 SF BLDG. C - 10,000 SF	20,325 SF
PATIO AREA	332 SF	2,777 SF	3,109 SF
LOT COVERAGE	0.06%	5.2%	5.26%
FLOOR AREA RATIO	0.00:1	0.05:1	0.06:1
BUILDING HEIGHT	1-STORY	1-STORY	1-STORY
IMPERVIOUS AREA	29,064 SF (0.8%)	116,406 SF (30.8%)	145,138 SF (38.3%)
OPEN SPACE	8.62 AC (92%)	6.04 AC (69.2%)	5.4 AC (61.7%)

PARKING DATA TABLE

PARKING REQUIRED	
DRIVE-THRU RESTAURANT (2,325 SF) 1 SPACE / 100 SF	24 SPACES
STANDARD PARKING	33 SPACES
ADA PARKING	2 SPACES
PARKING PROVIDED	
TOTAL PARKING	33 SPACES
ADA PARKING	2 SPACES

TREE MITIGATION SUMMARY

TOTAL MITIGATION REQUIRED:	387"
MITIGATION PROVIDED BY PLANTING 4" CALIPER TREES (78) TO BE PLANTED ONSITE:	312"
MITIGATION PROVIDED BY PURCHASING PRESERVATION CREDITS (20% OF TOTAL): (77.4" x $200 = $15,480 PAYMENT INTO THE CITY'S TREE FUND)	77.4"
TOTAL MITIGATION PROVIDED:	389.4"

LEGEND

- TREE TAG NUMBER
- EXISTING TREES TO BE PROTECTED IN PLACE
- TREE PROTECTION FENCE
- TREE TAG NUMBER
- EXISTING TREES TO BE REMOVED

SEE SHEET TD-2 FOR EXISTING TREE SURVEY TABLES & TREE MITIGATION CALCULATION TABLE
SEE SHEET LP-1 FOR PROPOSED REPLACEMENT TREES FOR MITIGATION.

Scale 1" = 20'

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WITNESS OUR HANDS THIS ____ DAY OF _____.

PLANNING AND ZONING COMMISSION, CHAIRMAN

DIRECTOR OF PLANNING AND ZONING

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
1903 CENTRAL DR. SUITE #406
BEDFORD, TX 76021
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REGISTERED LANDSCAPE ARCHITECT
DARCY R. BRANDON
3423
STATE OF TEXAS
10/13/2022

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Addison, TX 75001
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DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

TREESCAPE PLAN

DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	10/13/2022

SHEET

TD-1

File No. 2022-002

CASE # SP2022-042

PLOTTED BY: DARCY BRANDON
PLOT DATE: 10/13/2022 3:13 PM
LOCATION: C:\USERS\DARCY\DOCUMENTS\DBLA_PROJECTS\2022\EDG\CHIPOLTE DUWEST - ROCKWALL, TX\XREFS\2022-10-10 DUWEST ROCKWALL PHASE 2.DWG
LAST SAVED: 10/13/2022 3:10 PM

EXISTING TREE SURVEY

TREE TAG	SPECIES	CALIPER		FEATURE TREE	FEATRUE TREE REMOVED (2:1)	MITIGATION	PRIMARY PROTECTED	PRIMARY PROTECTED REMOVED (1:1)	MITIGATION	SECONDARY PROTECTED	SECONDARY PROTECTED REMOVED (0.5:1)	MITIGATION	NON-PROTECTED	COMMENTS
5001	CEDAR	22								22				PRESERVE
5002	CEDAR	10											10	PRESERVE
5003	CEDAR	10											10	PRESERVE
5004	CEDAR	10											10	PRESERVE
5005	HACKBERRY	24								24				PRESERVE
5006	CEDAR	14								14				PRESERVE
5007	HACKBERRY	12								12				PRESERVE
5008	HACKBERRY	16								16				PRESERVE
5009	HACKBERRY	14								14				PRESERVE
5057	CEDAR	24								24				PRESERVE
5058	HACKBERRY	12								12				PRESERVE
5059	HACKBERRY	24								24				PRESERVE
5060	ELM	30		30										PRESERVE
5061	ELM	23					23							PRESERVE
5062	HACKBERRY	8											8	PRESERVE
5063	ELM	7					7							PRESERVE
5064	ELM	25		25										PRESERVE
5065	HACKBERRY	13								13				PRESERVE
5066	PECAN	50		50										PRESERVE
5067	PECAN	20					20							PRESERVE
5068	WILLOW	13											13	PRESERVE
5069	ELM	13					13							PRESERVE
5071	ELM	15					15							PRESERVE
5072	PECAN	39		39										PRESERVE
5073	PECAN	23					23							PRESERVE
5095	HACKBERRY	9											9	REMOVE
5096	ELM	6						6	6					REMOVE
5097	ELM	12						12	12					REMOVE
5098	HACKBERRY	11									11	5.5		REMOVE
5100	CEDAR	9											9	REMOVE
5153	CEDAR	6											6	REMOVE
5155	BOIS D'ARC	36			36	72								REMOVE
5156	CEDAR	10											10	REMOVE
5157	HACKBERRY	20									20	10		REMOVE
5158	BOIS D'ARC	8											8	REMOVE
5159	HACKBERRY	13									13	6.5		REMOVE
5170	CEDAR	10											10	PRESERVE
5171	BOIS D'ARC	40		40										PRESERVE
5172	CEDAR	12								12				PRESERVE
5173	CEDAR	7											7	PRESERVE
5174	BOIS D'ARC	31		31										PRESERVE
5175	CEDAR	8											8	REMOVE
5176	HACKBERRY	8											8	REMOVE
5177	CEDAR	6											6	REMOVE
5178	BOIS D'ARC	21											21	REMOVE
5179	HACKBERRY	8											8	REMOVE
5180	HACKBERRY	8											8	REMOVE
5181	CEDAR	10											10	REMOVE
5182	BOIS D'ARC	14											14	REMOVE
5183	CEDAR	6											6	REMOVE
5184	BOIS D'ARC	26			26	52								REMOVE
5185	HACKBERRY	10											10	REMOVE
5186	BOIS D'ARC	10											10	REMOVE
5187	HACKBERRY	9											9	REMOVE
5188	BOIS D'ARC	10											10	REMOVE
5189	BOIS D'ARC	14											14	REMOVE
5190	HACKBERRY	16									16	8		REMOVE
5191	ELM	10						10	10					REMOVE
5192	ELM	8						8	8					REMOVE
5193	ELM	6						6	6					REMOVE
5194	BOIS D'ARC	20											20	REMOVE
5195	BOIS D'ARC	11											11	REMOVE
5196	HERCULES CLUB	13						13	13					REMOVE
5197	BOIS D'ARC	33			33	66								REMOVE
5198	HACKBERRY	8											8	REMOVE
5199	HACKBERRY	6											6	REMOVE
5200	ELM	28			28	56								REMOVE
5201	CEDAR	12									12	6		REMOVE
5202	CEDAR	10											10	REMOVE
5203	ELM	25			25	50								REMOVE
5204	WILLOW	30		30										PRESERVE
5205	WILLOW	13											13	PRESERVE
5207	WILLOW	12											12	PRESERVE
5208	WILLOW	16											16	PRESERVE
TOTAL TREES ON SITE		1156		245			101			187			348	
TREES REMOVED					148			55			72			
MITIGATION REQUIRED		387				296			55			36		
20% INTO TREE FUND		77.4												
BALANCE MITIGATION		309.6												
4" TREES REQ. TO MEET MITIGATION		77.4												

TREE MITIGATION CALCULATION TABLE

DESCRIPTION	CALIPER INCHES	FEATURE TREES	FEATURE TREES REMOVED 2:1	PRIMARY PROTECTED TREES	PRIMARY PROTECTED REMOVED 1:1	SECONDARY PROTECTED TREES	SECONDARY PROTECTED REMOVED 0.5:1	NON-PROTECTED TREES
TOTAL TREES ON SITE	1,156	245		101		187		348
TOTAL PROTECTED TREES	3,194							
TREES REMOVED	838		148		55		72	
TOTAL MITIGATION REQUIRED	387		296		55		36	
20% INTO TREE FUND ($200 / INCH)	77.4							
4" TREES PLANTED FOR MITIGATION (78)	312							
TOTAL MITIGATION PROVIDED	389.4							

TEXAS REGISTRATION #14199

CLAYMOORE ENGINEERING

PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM
1903 CENTRAL DR, SUITE #406
BEDFORD, TX 76021

REGISTERED LANDSCAPE ARCHITECT
DARCY R. BRANDON
3423
STATE OF TEXAS

10/13/2022

DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

DUWEST ROCKWALL, TX

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CASE NUMBER

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WITNESS OUR HANDS THIS ____ DAY OF _____.

_____
PLANNING AND ZONING COMMISSION, CHAIRMAN

_____
DIRECTOR OF PLANNING AND ZONING

EVERGREEN DESIGN GROUP
(800) 680-6630
15455 Dallas Pkwy., Ste 600
Addison, TX 75001
www.EvergreenDesignGroup.com

TREESCAPE INVENTORY & MITIGATION

DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	10/13/2022

SHEET

TD-2

File No. 2022-002

CASE # SP2022-042

PLOTTED BY: DARCY BRANDON
PLOT DATE: 10/13/2022 3:13 PM
LOCATION: C:\USERS\DARCY\DOCUMENTS\DBLA_PROJECTS\2022\EDG\CHIPOLTE DUWEST - ROCKWALL, TX\XREF'S\2022-10-10 DUWEST ROCKWALL PHASE 2.DWG
LAST SAVED: 10/13/2022 3:10 PM

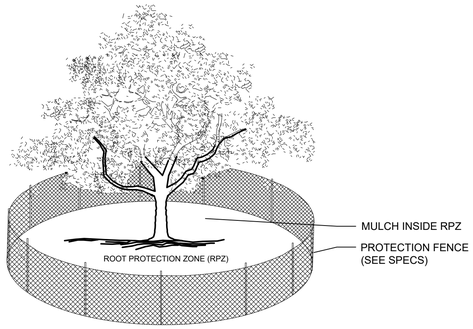
TREE PROTECTION SPECIFICATIONS

MATERIALS

1. FABRIC: 4 FOOT HIGH ORANGE PLASTIC FENCING AS SHOWN ON THE PLANS AND SHALL BE WOVEN WITH 2 INCH MESH OPENINGS SUCH THAT IN A VERTICAL DIMENSION OF 23 INCHES ALONG THE DIAGONALS OF THE OPENINGS THERE SHALL BE AT LEAST 7 MESHES.
2. POSTS: POSTS SHALL BE A MINIMUM OF 72 INCHES LONG AND STEEL 'T' SHAPED WITH A MINIMUM WEIGHT OF 1.3 POUNDS PER LINEAR FOOT.
3. TIE WIRE: WIRE FOR ATTACHING THE FABRIC TO THE T-POSTS SHALL BE NOT LESS THAN NO. 12 GAUGE GALVANIZED WIRE,
4. USED MATERIALS: PREVIOUSLY-USED MATERIALS, MEETING THE ABOVE REQUIREMENTS AND WHEN APPROVED BY THE OWNER, MAY BE USED.

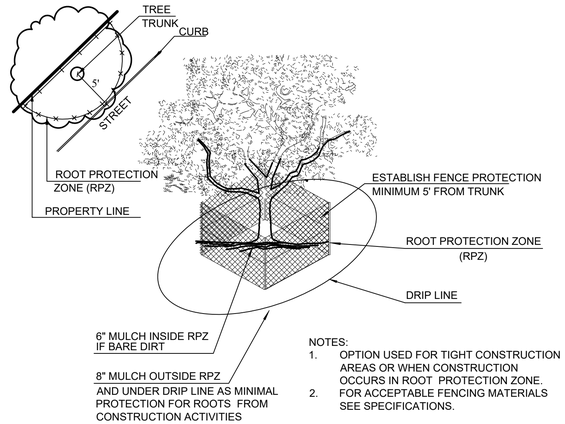
CONSTRUCTION METHODS

1. ALL TREES AND SHRUBS SHOWN TO REMAIN WITHIN THE PROXIMITY OF THE CONSTRUCTION SITE SHALL BE PROTECTED PRIOR TO BEGINNING ANY DEVELOPMENT ACTIVITY.
2. EMPLOY THE SERVICES OF AN ISA (INTERNATIONAL SOCIETY OF ARBORICULTURE) CERTIFIED ARBORIST AND OBTAIN ALL REQUIRED PERMITS TO PRUNE THE EXISTING TREES FOR CLEANING, RAISING AND THINNING, AS MAY BE REQUIRED.
3. PROTECTIVE FENCING SHALL BE ERECTED OUTSIDE THE CRITICAL ROOT ZONE (CRZ, EQUAL TO 1' FROM THE TRUNK FOR EVERY 1" OF DBH) AT LOCATIONS SHOWN IN THE PLANS OR AS DIRECTED BY THE LANDSCAPE CONSULTANT AND/OR CITY ARBORIST, AND IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS. FENCING SHALL BE MAINTAINED AND REPAIRED BY THE CONTRACTOR DURING SITE CONSTRUCTION. TREES IN CLOSE PROXIMITY SHALL BE FENCED TOGETHER, RATHER THAN INDIVIDUALLY.
4. PROTECTIVE FENCE LOCATIONS IN CLOSE PROXIMITY TO STREET INTERSECTIONS OR DRIVES SHALL ADHERE TO THE APPLICABLE JURISDICTION'S SIGHT DISTANCE CRITERIA.
5. THE PROTECTIVE FENCING SHALL BE ERECTED BEFORE SITE WORK COMMENCES AND SHALL REMAIN IN PLACE DURING THE ENTIRE CONSTRUCTION PHASE.
6. THE INSTALLATION POSTS SHALL BE PLACED EVERY 6 FEET ON CENTER AND EMBEDDED TO 18 INCHES DEEP. MESH FABRIC SHALL BE ATTACHED TO THE INSTALLATION POSTS BY THE USE OF SUFFICIENT WIRE TIES TO SECURELY FASTEN THE FABRIC TO THE T-POSTS TO HOLD THE FABRIC IN A STABLE AND UPRIGHT POSITION.
7. WITHIN THE CRZ:
   a. DO NOT CLEAR, FILL OR GRADE IN THE CRZ OF ANY TREE.
   b. DO NOT STORE, STOCKPILE OR DUMP ANY JOB MATERIAL, SOIL OR RUBBISH UNDER THE SPREAD OF THE TREE BRANCHES.
   c. DO NOT PARK OR STORE ANY EQUIPMENT OR SUPPLIES UNDER THE TREE CANOPY.
   d. DO NOT SET UP ANY CONSTRUCTION OPERATIONS UNDER THE TREE CANOPY (SUCH AS PIPE CUTTING AND THREADING, MORTAR MIXING, PAINTING OR LUMBER CUTTING).
   e. DO NOT NAIL OR ATTACH TEMPORARY SIGNS METERS, SWITCHES, WIRES, BRACING OR ANY OTHER ITEM TO THE TREES.
   f. DO NOT PERMIT RUNOFF FROM WASTE MATERIALS INCLUDING SOLVENTS, CONCRETE WASHOUTS, ASPHALT TACK COATS (MC-30 OIL), ETC. TO ENTER THE CRZ. BARRIERS ARE TO BE PROVIDED TO PREVENT SUCH RUNOFF SUBSTANCES FROM ENTERING THE CRZ WHENEVER POSSIBLE, INCLUDING IN AN AREA WHERE RAIN OR SURFACE WATER COULD CARRY SUCH MATERIALS TO THE ROOT SYSTEM OF THE TREE.
8. ROUTE UNDERGROUND UTILITIES TO AVOID THE CRZ. IF DIGGING IS UNAVOIDABLE, BORE UNDER THE ROOTS, OR HAND DIG TO AVOID SEVERING THEM.
9. WHERE EXCAVATION IN THE VICINITY OF TREES MUST OCCUR, SUCH AS FOR IRRIGATION INSTALLATION, PROCEED WITH CAUTION, AND USING HAND TOOLS ONLY.
10. THE CONTRACTOR SHALL NOT CUT ROOTS LARGER THAN ONE INCH IN DIAMETER WHEN EXCAVATION OCCURS NEAR EXISTING TREES. ALL ROOTS LARGER THAN ONE INCH IN DIAMETER ARE TO BE CUT CLEANLY. FOR OAKS ONLY, ALL WOUNDS SHALL BE PAINTED WITH WOUND SEALER WITHIN 30 MINUTES
11. REMOVE ALL TREES, SHRUBS OR BUSHES TO BE CLEARED FROM PROTECTED ROOT ZONE AREAS BY HAND.
12. TREES DAMAGED OR KILLED DUE TO CONTRACTOR'S NEGLIGENCE DURING CONSTRUCTION SHALL BE MITIGATED AT THE CONTRACTOR'S EXPENSE AND TO THE PROJECT OWNER'S AND LOCAL JURISDICTION'S SATISFACTION.
13. ANY TREE REMOVAL SHALL BE APPROVED BY THE OWNER AND LOCAL JURISDICTION PRIOR TO ITS REMOVAL, AND THE CONTRACTOR SHALL HAVE ALL REQUIRED PERMITS FOR SUCH ACTIVITIES.
14. COVER EXPOSED ROOTS AT THE END OF EACH DAY WITH SOIL, MULCH OR WET BURLAP.
15. IN CRITICAL ROOT ZONE AREAS THAT CANNOT BE PROTECTED DUING CONSTRUCTION AND WHERE HEAVY TRAFFIC IS ANTICIPATED, COVER THE SOIL WITH EIGHT INCHES OF ORGANIC MULCH TO MINIMIZE SOIL COMPACTION. THIS EIGHT INCH DEPTH OF MULCH SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
16. WATER ALL TREES IMPACTED BY CONSTRUCTION ACTIVITIES, DEEPLY ONCE A WEEK DURING PERIODS OF HOT DRY WEATHER. SPRAY TREE CROWNS WITH WATER PERIODICALLY TO REDUCE DUST ACCUMULATION ON THE LEAVES.
17. WHEN INSTALLING CONCRETE ADJACENT TO THE ROOT ZONE OF A TREE, USE A PLASTIC VAPOR BARRIER BEHIND THE CONCRETE TO PROHIBIT LEACHING OF LIME INTO THE SOIL.
18. CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL TREE PROTECTION FENCING WHEN ALL THREATS TO THE EXISTING TREES FROM CONSTRUCTION-RELATED ACTIVITIES HAVE BEEN REMOVED.



NOTES:
1. THE FENCING LOCATION SHOWN ABOVE IS DIAGRAMATIC ONLY AND WILL CONFORM TO THE DRIP LINE AND BE LIMITED TO PROJECT BOUNDARY. WHERE MULTIPLE ADJACENT TREES WILL BE ENCLOSED BY FENCING, THE FENCING SHALL BE CONTINUOUS AROUND ALL TREES.
2. FOR ACCEPTABLE FENCING MATERIALS SEE SPECIFICATIONS.

A TREE PROTECTION FENCE
SCALE: NOT TO SCALE

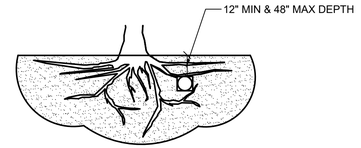


NOTES:
1. OPTION USED FOR TIGHT CONSTRUCTION AREAS OR WHEN CONSTRUCTION OCCURS IN ROOT PROTECTION ZONE.
2. FOR ACCEPTABLE FENCING MATERIALS SEE SPECIFICATIONS.

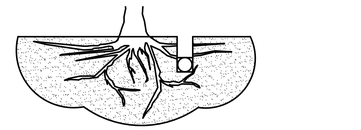
B TREE PROTECTION FENCE - TIGHT CONSTRUCTION
SCALE: NOT TO SCALE

TREES THAT ARE MARKED TO BE PRESERVED ON A SITE PLAN AND FOR WHICH UTILITIES MUST PASS TROUGH THEIR ROOT PROTECTION ZONES MAY REQUIRE TUNNELING AS OPPOSED TO OPEN TRENCHES. THE DECISION TO TUNNEL WILL BE DETERMINED ON A CASE BY CASE BASIS BY THE ENGINEER.

TUNNELS SHALL BE DUG THROUGH THE ROOT PROTECTION ZONE IN ORDER TO MINIMIZE ROOT DAMAGE.



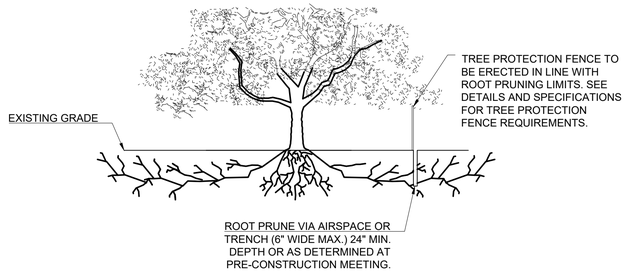
TUNNEL TO MINIMIZE ROOT DAMAGE (TOP) AS OPPOSED TO SURFACE-DUG TRENCHES IN ROOT PROTECTION ZONE WHEN THE 5' MINIMUM DISTANCE FROM TRUNK CAN NOT BE ACHIEVED.



OPEN TRENCHING MAY BE USED IF EXPOSED TREE ROOTS DO NOT EXCEED 3" OR ROOTS CAN BE BENT BACK.

C BORING THROUGH ROOT PROTECTION ZONE
SCALE: NOT TO SCALE

NOTES
1. RETENTION AREAS WILL BE SET AS PART OF THE REVIEW PROCESS AND PRE-CONSTRUCTION MEETING.
2. BOUNDARIES OF RETENTION AREAS MUST BE STAKED AT THE PRE-CONSTRUCTION MEETING AND FLAGGED PRIOR TO ROOT PRUNING.
3. EXACT LOCATION OF ROOT PRUNING SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE FORESTRY INSPECTOR .
4. TRENCH SHOULD BE IMMEDIATELY BACKFILLED WITH EXCAVATED SOIL OR OTHER ORGANIC SOIL AS SPECIFIED PER PLAN OR BY THE FORESTRY INSPECTOR.
5. ROOTS SHALL BE CLEANLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE EQUIPMENT. ROT PRUNING METHODS AND MEANS MUST BE IN ACCORDANCE WITH ANSI STANDARD A3000.
6. ALL PRUNING MUST BE EXECUTED AT LOD SHOWN ON PLANS OR AS AUTHORIZED IN WRITING BY THE FORESTRY INSPECTOR .
7. SUPPLEMENTAL WATERING MAY BE REQUIRED FOR ROOT PRUNED TREES THROUGHOUT THE GROWING SEASON DURING CONSTRUCTION AND SUBSEQUENT WARRANTY AND MAINTENANCE PERIOD.



D ROOT PRUNING DETAIL
SCALE: NOT TO SCALE

TREE PROTECTION GENERAL NOTES

(A) PRIOR TO THE LAND CLEARING STAGE OF DEVELOPMENT, THE CONTRACTOR SHALL CLEARLY MARK ALL PROTECTED TREES FOR WHICH A TREE REMOVAL PERMIT HAS NOT BEEN ISSUED AND SHALL ERECT BARRIERS FOR THE PROTECTION OF THE TREES ACCORDING TO THE FOLLOWING:
(1) AROUND AN AREA AT OR GREATER THAN A SIX-FOOT RADIUS OF ALL SPECIES OF MANGROVES AND PROTECTED CABBAGE PALMS;
(2) AROUND AN AREA AT OR GREATER THAN THE FULL DRIPLINE OF ALL PROTECTED NATIVE PINES;
(3) AROUND AN AREA AT OR GREATER THAN TWO-THIRDS OF THE DRIPLINE OF ALL OTHER PROTECTED SPECIES.

(B) NO PERSON SHALL ATTACH ANY SIGN, NOTICE OR OTHER OBJECT TO ANY PROTECTED TREE OR FASTEN ANY WIRES, CABLES, NAILS OR SCREWS TO ANY PROTECTED TREE IN ANY MANNER THAT COULD PROVE HARMFUL TO THE PROTECTED TREE, EXCEPT AS NECESSARY IN CONJUNCTION WITH ACTIVITIES IN THE PUBLIC INTEREST.

(C) DURING THE CONSTRUCTION STAGE OF DEVELOPMENT, THE CONTRACTOR SHALL NOT CAUSE OR PERMIT THE CLEANING OF EQUIPMENT OR MATERIAL WITHIN THE OUTSIDE PERIMETER OF THE CROWN (DRIPLINE) OR ON THE NEARBY GROUND OF ANY TREE OR GROUP OF TREES WHICH IS TO BE PRESERVED. WITHIN THE OUTSIDE PERIMETER OF THE CROWN (DRIPLINE) OF ANY TREE OR ON NEARBY GROUND, THE CONTRACTOR SHALL NOT CAUSE OR PERMIT STORAGE OF BUILDING MATERIAL AND/OR EQUIPMENT, OR DISPOSAL OF WASTE MATERIAL SUCH AS PAINTS, OIL, SOLVENTS, ASPHALT, CONCRETE, MORTAR OR ANY OTHER MATERIAL HARMFUL TO THE LIFE OF THE TREE.

(D) NO PERSON SHALL PERMIT ANY UNNECESSARY FIRE OR BURNING WITHIN 30 FEET OF THE DRIPLINE OF A PROTECTED TREE.

(E) ANY LANDSCAPING ACTIVITIES WITHIN THE BARRIER AREA SHALL BE ACCOMPLISHED WITH HAND LABOR.

(F) PRIOR TO ISSUING A CERTIFICATE OF OCCUPANCY OR COMPLIANCE FOR ANY DEVELOPMENT, BUILDING OR STRUCTURE, ALL TREES DESIGNATED TO BE PRESERVED THAT WERE DESTROYED DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR WITH TREES OF EQUIVALENT DIAMETER AT BREAST HEIGHT TREE CALIPER AND OF THE SAME SPECIES AS SPECIFIED BY THE CITY ADMINISTRATOR, BEFORE OCCUPANCY OR USE, UNLESS APPROVAL FOR THEIR REMOVAL HAS BEEN GRANTED UNDER PERMIT.

(G) THE CITY ADMINISTRATOR MAY CONDUCT PERIODIC INSPECTIONS OF THE SITE DURING LAND CLEARANCE AND CONSTRUCTION.

(H) IF, IN THE OPINION OF THE CITY ADMINISTRATOR, DEVELOPMENT ACTIVITIES WILL SO SEVERELY STRESS SLASH PINES OR ANY OTHER PROTECTED TREE SUCH THAT THEY ARE MADE SUSCEPTIBLE TO INSECT ATTACK, PREVENTATIVE SPRAYING OF THESE TREES BY THE CONTRACTOR MAY BE REQUIRED.

DUWEST ROCKWALL, TX

LEGAL DESCRIPTION AND OR ADDRESS:

STONE CREEK BALANCE LTD
ABSTRACT. NO 131
8.684 AC (378,275 SF)

OWNER:
DuWEST REALTY, LLC
4403 N.CENTRAL EXWAY SUITE #200
DALLAS, TX 75025
CONTACT: BOWEN HENDRIX
PH: 214.918.1804

APPLICANT:
CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
PH: 817.281.0572

CASE NUMBER
Z2022-003

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING AND ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____.

WITNESS OUR HANDS THIS ____ DAY OF _____.

_____
PLANNING AND ZONING COMMISSION, CHAIRMAN

_____
DIRECTOR OF PLANNING AND ZONING

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM
1903 CENTRAL DR, SUITE #406
BEDFORD, TX 76021

REGISTERED LANDSCAPE ARCHITECT
DARCY R. BRANDON
3423
STATE OF TEXAS

10/13/2022

DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

EVERGREEN DESIGN GROUP
(800) 680-6630
15455 Dallas Pkwy., Ste 600
Addison, TX 75001
www.EvergreenDesignGroup.com

TREESCAPE DETAILS & SPECIFICATIONS

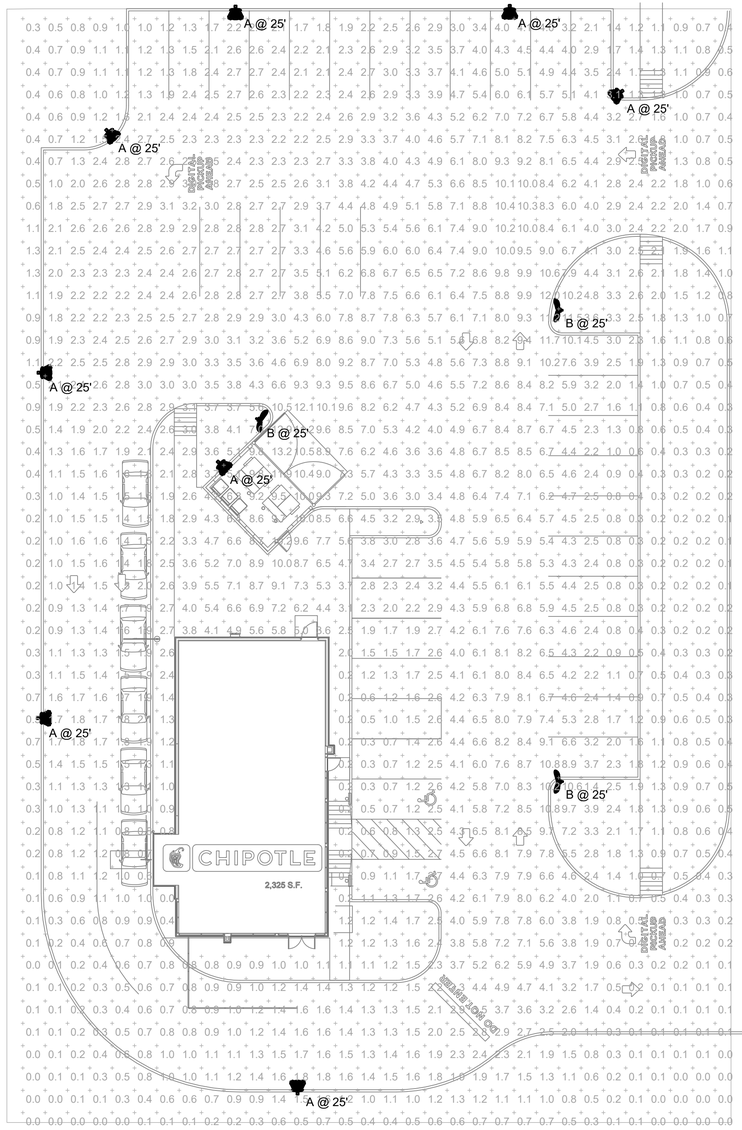
DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	10/13/2022

SHEET
TD-3

File No. 2022-002

CASE # SP2022-042

PLOTTED BY: DARCY BRANDON
PLOT DATE: 10/13/2022 3:13 PM
LOCATION: C:\USERS\DARCY\DOCUMENTS\DBLA_PROJECTS\2022\EDG\CHIPOLTE DUWEST - ROCKWALL, TX\XREF'S\2022-10-10 DUWEST ROCKWALL PHASE 2.DWG
LAST SAVED: 10/13/2022 3:10 PM



COIT ROAD

Plan View
Scale - 1" = 20ft

Schedule

Symbol	Label	Image	QTY	Manufacturer	Catalog	Description	Number Lamps	Lamp Output	LLF	Input Power	Polar Plot
	A		8	Beacon Products	VP-1-36L-39-4K7-4F	VIPER	1	5465	1	39.6	Max: 6136cd
	B		3	BEACON PRODUCTS	VP-2-320L-185-4K7-2		1	26667	1	185.7	Max: 28295cd

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Site	+	3.0 fc	13.2 fc	0.0 fc	N/A	N/A

Consultant:

ARCHITECT OF RECORD

ROGUE ARCHITECTS

513 MAIN STREET, SUITE 300
FORT WORTH, TEXAS 76102
(817) 820-0433

STATE OF TEXAS
DARRELL ROY CASE
82433
REGISTERED
PROFESSIONAL ENGINEER

12/09/2022

DUWEST
CREATING, ENHANCING & PROTECTING VALUE

ROCKWALL NORTH SHELL
SH205 & QUAIL RUN ROAD
ROCKWALL, TX

Issue Record:

Revisions:

Drawn:	Checked:
JJV	BW

Project No.
ROGUE #22-0547

Contents:
SITE PHOTOMETRIC

E002

CASE Engineering Inc.

796 Merus Court
St. Louis, MO 63026
T 636.349.1600
F 636.349.1730
CERTIFICATE OF AUTHORITY NO. F-20080

STATE HIGHWAY 205
100' RIGHT-OF-WAY

N 14°18'55" W 490.04'

EROSION HAZAD SETBACK & DRAINAGE ESMT.

EX. WINGED HEADWALL

EX. 24" RCP

PROP. WINGED HEADWALL

PROP. 18" RCP

PROP. 18" RCP

PROP 5' CURB INLET

PROP. 18" RCP

PROP 5' CURB INLET

PROP. 18" RCP

PROP. GREASE TRAP

PROP. 6" SSWR

PROP. 6" SSWR

DIGITAL PICKUP AHEAD

EX. 18" RCP

PROP 5' CURB INLET

EX. 12" WL

FIRE LANE, PUBLIC ACCESS AND UTILITY ESMT.

PROP. 2" WL

PROP. 6" FIRE LINE

CONNECT 2" PROP. WATERLINE TO 2" DOMM. METER STUB

CONNECT PROP. 6" SSWR TO EXISTING 6" SSWR STUB

PROP. 6" SSWR

CONNECT 6" FIRE LINE TO EX. 6" STUB

2" IRR. METER

EX. 8" SSWR

FIRE LANE, PUBLIC ACCESS AND UTILITY ESMT.

EX. 2" WL

EX. 12" WL

N 54°44'31" W 165.14'

25' WIDE MUTUAL ACCESS ESMT.

CONNECT ELECTRIC AND COMM LINE TO EX. POWER POLE

CIRS

CIRS

TRM X OUT

PLOTTED BY: LYNN ROWLAND
PLOT DATE: 12/12/2022 8:34 AM
LOCATION: Z:\PROJECTS\PROJECTS\2022-175 DUWEST ROCKWALL PH. 2\CADD\EXHIBIT\PRELIMINARY UTILITY PLAN.DWG
LAST SAVED: 10/11/2022 2:14 PM

GRAPHIC SCALE
20 0 10 20 40
1 inch = 20 ft.

LEGEND	
W	EXISTING WATER MAIN
SS (S)	EXISTING SANITARY SEWER AND MANHOLE
W	PROPOSED WATER LINE
SS (S)	PROPOSED SANITARY SEWER LINE AND MANHOLE
SS	PROPOSED SANITARY SEWER LINE AND CLEAN OUT
COMM	PROPOSED COMMUNICATION LINE
UGE	PROPOSED UNDERGROUND ELECTRICAL LINE
	EXISTING OVERHEAD POWER LINE

LEGEND	
695	EX. CONTOURS
	STORM DRAIN
	CURB INLET

DUWEST ROCKWALL PH 2, TX

LEGAL DESCRIPTION AND OR ADDRESS:

STONE CREEK BALANCE LTD
ABSTRACT. NO 131
8.684 AC (378,275 SF)

OWNER:

DuWEST REALTY, LLC
4403 N.CENTRAL EXWAY SUITE #200
DALLAS, TX 75025
CONTACT: BOWEN HENDRIX
PH: 214.918.1804

APPLICANT:

CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
PH: 817.281.0572

CASE NUMBER

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING AND ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____.

WITNESS OUR HANDS THIS ____ DAY OF _____.

_____
PLANNING AND ZONING COMMISSION, CHAIRMAN

_____
DIRECTOR OF PLANNING AND ZONING

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
1903 CENTRAL DR, SUITE #406
BEDFORD, TX 76021
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM

PRELIMINARY
FOR REVIEW ONLY
Not for construction purposes.
CLAYMOORE ENGINEERING
ENGINEERING AND PLANNING CONSULTANTS
Engineer DREW DONOSKY
P.E. No. 125651 Date 12/12/2022

DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

PRELIMINARY UTILITY PLAN

DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	12/12/2022

SHEET
C-1

File No. 2022-002

CASE #

513 Main Street
Suite 300
Fort Worth, Texas 76102
Office: 817.820.0433
Fax: 682.224.8917
roguearchitects.com

ROGUE ARCHITECTS

December 7, 2022

Chipotle Mexican Grill (Shell)
NWQ N. Goliad & E. Quail Run Rd
Rockwall, TX 75087

On behalf of DuWest Realty, we wish to submit a variance request to the City of Rockwall Planning and Zoning Department as part of our façade elevation plan submittal.

Chipotle Mexican Grill, to be located in Stone Creek Balance Ltd. Abstract No. 131 proposed new build will use materials consistent with the surrounding building in the overlay district. The design incorporates cantilevered canopies, recesses and projections (main entry), an outdoor patio, architecturally detailed herringbone brick on the pickup lane side of the building, an articulated cornice line, and varied parapet heights.

We request the following variance:

1. Roof Design Standards: Pitched roof for buildings under 6,000 sqft.
    a. Additional masonry detailing has been provided to exceed architectural design requirements. Owner wishes the be granted a variance to preserve corporate identity.

Thank you for your consideration,

Taylor Grandorf
Architect | Project Manager
817-820-0433

PROJECT COMMENTS

CITY OF ROCKWALL
385 S. GOLIAD STREET
ROCKWALL, TEXAS 75087
PHONE: (972) 771-7700

DATE: 12/19/2022

PROJECT NUMBER:	SP2022-057	CASE MANAGER:	Henry Lee
PROJECT NAME:	Site Plan for DuWest Phase 2	CASE MANAGER PHONE:	972.772.6434
SITE ADDRESS/LOCATIONS:	3000 N GOLIAD ST	CASE MANAGER EMAIL:	hlee@rockwall.com

CASE CAPTION: Discuss and consider a request by Bowen Hendrix of DuWest Realty, LLC for the approval of a Site Plan for a Restaurant with 2,000 SF or more with a Drive-Through (i.e. Chipotle) on an 8.684-acre portion of a larger 36.428-acre tract of land identified as Tract 3 of the S. King Survey, Abstract No. 131, City of Rockwall, Rockwall County, Texas, being zoned Planned Development District 70 (PD-70) for limited General Retail (GR) District land uses, situated within the North SH-205 Overlay (N. SH-205 OV) District, generally located at the northeast corner of the intersection of E. Quail Run Road and N. Goliad Street [SH-205], and take any action necessary.

DEPARTMENT	REVIEWER	DATE OF REVIEW	STATUS OF PROJECT
PLANNING	Henry Lee	12/19/2022	Needs Review

12/19/2022: Please address the following comments (M= Mandatory Comments; I = Informational Comments)

I.1 This is a request for the approval of a Site Plan for a Restaurant with 2,000 SF or more with a Drive-Through (i.e. Chipotle) on an 8.684-acre portion of a larger 36.428-acre tract of land identified as Tract 3 of the S. King Survey, Abstract No. 131, City of Rockwall, Rockwall County, Texas, being zoned Planned Development District 70 (PD-70) for limited General Retail (GR) District land uses, situated within the North SH-205 Overlay (N. SH-205 OV) District, generally located at the northeast corner of the intersection of E. Quail Run Road and N. Goliad Street [SH-205].

I.2 For questions or comments concerning this case please contact Henry Lee in the Planning Department at (972) 772-6434 or email hlee@rockwall.com.

M.3 For reference, include the case number (SP2022-057) in the lower right-hand corner of all pages of all revised plan submittals. (Subsection 01.02(D), Article 11, UDC)

I.4 All signage will be covered by a separate permit. (Subsection 06.02. F, of Article 05)

I.5 The subject property will be required to final plat to establish any new fire lane and utility easements. (Subsection 03.04. A, of Article 11)

M.6 In the variance letter identify the compensatory measures for each variance/exception requested. According to the UDC each variance/exception required two (2) compensatory measures. (Subsection 09.01, of Article 11)

M.7 Provide the standard signature block with signature space for the Planning and Zoning Chairman and the Planning Director on all pages of the plans. Also remove the red placeholder text from the signature block. (Subsection 03.04. A, of Article 11)

APPROVED:
I hereby certify that the above and foregoing site plan for a development in the City of Rockwall, Texas, was approved by the Planning & Zoning Commission of the City of Rockwall on the ____ day of _____, _____.

WITNESS OUR HANDS, this _____ day of _____, _____.

Planning & Zoning Commission, Chairman

Director of Planning and Zoning

M.8 Site Plan:
(1) Please indicate the perimeter dimensions of the site. (Subsection 03.04. B, of Article 11)
(2) Please indicate all wall lengths of the proposed building. (Subsection 03.04. B, of Article 11)
(3) Please indicate the distance from the building to all property lines. (Subsection 03.04. B, of Article 11)
(4) Please indicate all building setbacks. The building setback along N. Goliad Street is 25-feet. (Subsection 03.04. B, of Article 11)
(5) Please indicate all existing and proposed easements. (Subsection 03.04. B, of Article 11)
(6) Please indicate any proposed fire hydrants. (Subsection 03.04. B, of Article 11)
(7) Please label N. Goliad Street; this is to provide reference on the site plan. (Subsection 03.04. B, of Article 11)
(8) Within the parking table please indicate the parking required for the patio. Outdoor seating is calculated as one (1) parking space per four (4) seats. (Subsection 05.01, of Article 06)
(9) Please indicate the type and depth of the paving materials. (Subsection 03.02, of Article 06)
(10) Is there any proposed fencing? Please indicate the height and type of fencing if any is proposed. (Subsection 08.02. F, of Article 08)
(11) Please indicate if there is any proposed ground mounted utility equipment. (Subsection 01.05. C, of Article 05)
(12) The dumpster enclosure must be 8-feet in height and have a self-latching gate. (Subsection 01.05. B, of Article 05)
(13) Please clarify the marking board. (Subsection 03.04. B, of Article 11)
(14) Please provide a sidewalk from the site to the amenity area to the north-east. (Planned Development District 70)

M.9 Landscape Plan:
(1) Shrubs must be provided along the east property line to screen for headlights. (Subsection 05.03. B, of Article 08)
(2) All shrubs must be five (5) gallon. (Subsection 05.03. B, of Article 08)
(3) The patio indicated on the site plan has plantings within it on the landscape plan. Please clarify if there will be a patio or if this are will be landscaped. (Subsection 05.03, of Article 08)

M.10 Treescape Plan:
(1) It appears that the tree mitigation requirements may have been calculated under the previous tree mitigation requirements. Given this, there are several changes that need to be made to the tree mitigation table. That being said, the total tree mitigation is 351 caliper inches, with 70.2 in tree preservation credits, bringing the balance to 280.8 caliper inches. There are 312 caliper inches being planted on site, which reduces the balance to zero. This means no fees will need to be paid for tree mitigation. (Section 05, of Article 09) Below is the list of changes for the tree mitigation table:
a. Cedar tree (i.e. Eastern Red Cedar) are mitigated as any Cedar tree over 8-feet must have one (1) four (4) inch canopy tree planted. Trees 5100, 5153, 5156, 5175, 5177, 5181, 5183, 5201, and 5202 should be mitigated for four (4) inches if greater than 8-feet in height.
b. Hackberry trees are no longer mitigated for. From the secondary protected trees 5098, 5157, 5159, and 5190 do not need to be mitigated for.

M.11 Photometric Plan:
1. Provide the same site data information required in Section 2.1 Site Plan: Miscellaneous and Density and Dimensional Requirements of this checklist. (Section 2.1 of this checklist)
2. I must have the lot lines on the photometric plan to ensure that the Foot-Candles do not exceed 0.2 FC at all property lines. (Subsection 03.03. G, of Article 07)
3. If there are any wall packs, these must be included in the photometric plan. (Subsection 03.03. G, of Article 07)
4. The mounting height of all building and pole mounted fixtures shall not exceed 20-feet. (Subsection 03.03. D, of Article 07)
5. Please provide cutsheets for all light fixtures. There shall be no up lighting. (Subsection 03.03, of Article 07)

M.12 Building Elevations:
1. The General Overlay District Standards require natural or quarried stone to be used on 20% of each building façade. (Subsection 06.02. C, of Article 05)
2. Confirm the metal percentage on the west side of the building as it appears to be incorrect. (Subsection 06.02. C, of Article 05)
3. Painting the parapet is considered a variance per the Unified Development Code (UDC). According to Subsection 04.01, of Article 05 the parapets must be finished on the back side with the same material as the exterior façade. (Subsection 04.01, of Article 05)

4. According to Subsection 06.02. C, 7, of Article 05, “(a)ll buildings within a common retail, commercial or office development shall incorporate complementary architectural styles, materials, and colors.” That being said, our Architectural Review Board in the past has requested that buildings within common developments use the same materials; previous developments have fulfilled this request. Staff would recommend matching the materials and architectural style of the development to the east.
5. The proposed building does not meet the articulation standards for wall length and projection height. The wall length requirement is Wall Length = 3 x Wall Height, and the projection height requirements is Projection Height = 25% x Wall Height. Per these standards, the wall length is out of conformance on the south façade, and the projection height is out of conformance on the north façade. These will each be variances to the articulation standards if not corrected, which will require the variance letter to be updated.
6. There is currently a large blank wall that looks like it is intended to incorporate a mural or hand painted signage. Please note that murals shall not permitted on the building. (Subsection 06.02. C, of Article 05)

I.13 Staff has identified the following variances associated with the proposed request: [1] roof design standards, [2] painted parapet, [3] primary façade articulation, and [4] natural stone requirements. Should you decide to request these items as variances, please provide a letter that lists the variances, why they are being requested, and the subsequent compensatory measures. For each exception and variance requested the UDC requires two (2) compensatory measures (Subsection 09.01, of Article 11). Examples of compensatory measures include the increased use of masonry material or stone, increased articulation, increased architectural elements, more pedestrian amenity, larger landscape planting sizes, etc.

I.14 Please note that failure to address all comments provided by staff by 3:00 PM on January 3, 2023 will result in the automatic denial of the case on the grounds of an incomplete submittal. No refund will be given for cases that are denied due to an incomplete submittal, and a new application and fee will be required to resubmit the case.

I.15 Staff has identified the aforementioned items necessary to continue the submittal process. Please make these revisions and corrections, and provide any additional information that is requested. Revisions for this case will be due on January 3, 2023; however, it is encouraged for applicants to submit revisions as soon as possible to give staff ample time to review the case prior to the January 10, 2023 Planning & Zoning Meeting.

I.16 Please note the scheduled meetings for this case:
1) Planning & Zoning Work Session meeting will be held on December 27, 2022.
2) Planning & Zoning meeting/public hearing meeting will be held on January 10, 2023.

I.17 All meetings will be held in person and in the City’s Council Chambers. All meetings listed above are scheduled to begin at 6:00 p.m. (P&Z). The City prefers that a representative(s) be present for these meetings. During the upcoming work session meeting with the Planning and Zoning Commission, representative(s) are expected to present their case and answer any questions the Planning Commission may have regarding this request.

DEPARTMENT	REVIEWER	DATE OF REVIEW	STATUS OF PROJECT
ENGINEERING	Sarah Johnston	12/16/2022	Needs Review

12/16/2022: - Call out limits of floodplain and water elevations a minimum of every 300'. Call out the minimum FFE based on the WSEL.
- With the proposed dumpster location, trash truck cannot access when vehicles are in the drive thru, vehicles cannot enter the drive thru, and the trash truck will have to circle the building along the by pass lane after picking up the trash.
- Label the Grease trap
- Show and call out FDC location and proposed fire hydrant. FDC comment is based on the preliminary utility plan showing the fire line running to the building.
- Water and sewer stubs have not been designed to be installed with the overall project plans.
- Tree cannot be on the water meters.
- Dumpster must drain to a oil/water separator and drain to the storm system.

The following items are informational for the engineering design process.
General Items:
- Must meet City Standards of Design and Construction
- 4% Engineering Inspection Fees
- Impact Fees (Water, Wastewater & Roadway)

- Minimum easement width is 20' for new easements. No structures including walls allowed in easements.
- Must show proposed and existing water and sewer lines on this plan

Drainage Items:
- Detention is accounted for previously. Must follow the same drainage divide line that was established previously.
- Dumpster areas to drain to oil/water separator and then to the storm lines.

Water and Wastewater Items:
- Must loop 8" water line on site (if needed).
- Only one "use" off a dead-end line (domestic, irrigation, fire sprinkler, fire hydrant, etc.)
- Minimum public sewer is 8". Must connect to the sewer line on the northeast.
- Water and sewer must be 10' apart.

Roadway Paving Items:
- Fire lane to be in a platted easement.

Landscaping:
- No trees to be with 10' of any public water, sewer or storm line that is 10" in diameter or larger.
- No trees to be with 5' of any public water, sewer, or storm line that is less than 10".
- No tree to be planted on top of meters.

DEPARTMENT	REVIEWER	DATE OF REVIEW	STATUS OF PROJECT
BUILDING	Rusty McDowell	12/14/2022	Approved

No Comments

DEPARTMENT	REVIEWER	DATE OF REVIEW	STATUS OF PROJECT
FIRE	Ariana Kistner	12/15/2022	Approved

No Comments

DEPARTMENT	REVIEWER	DATE OF REVIEW	STATUS OF PROJECT
GIS	Lance Singleton	10/17/2022	Approved w/ Comments

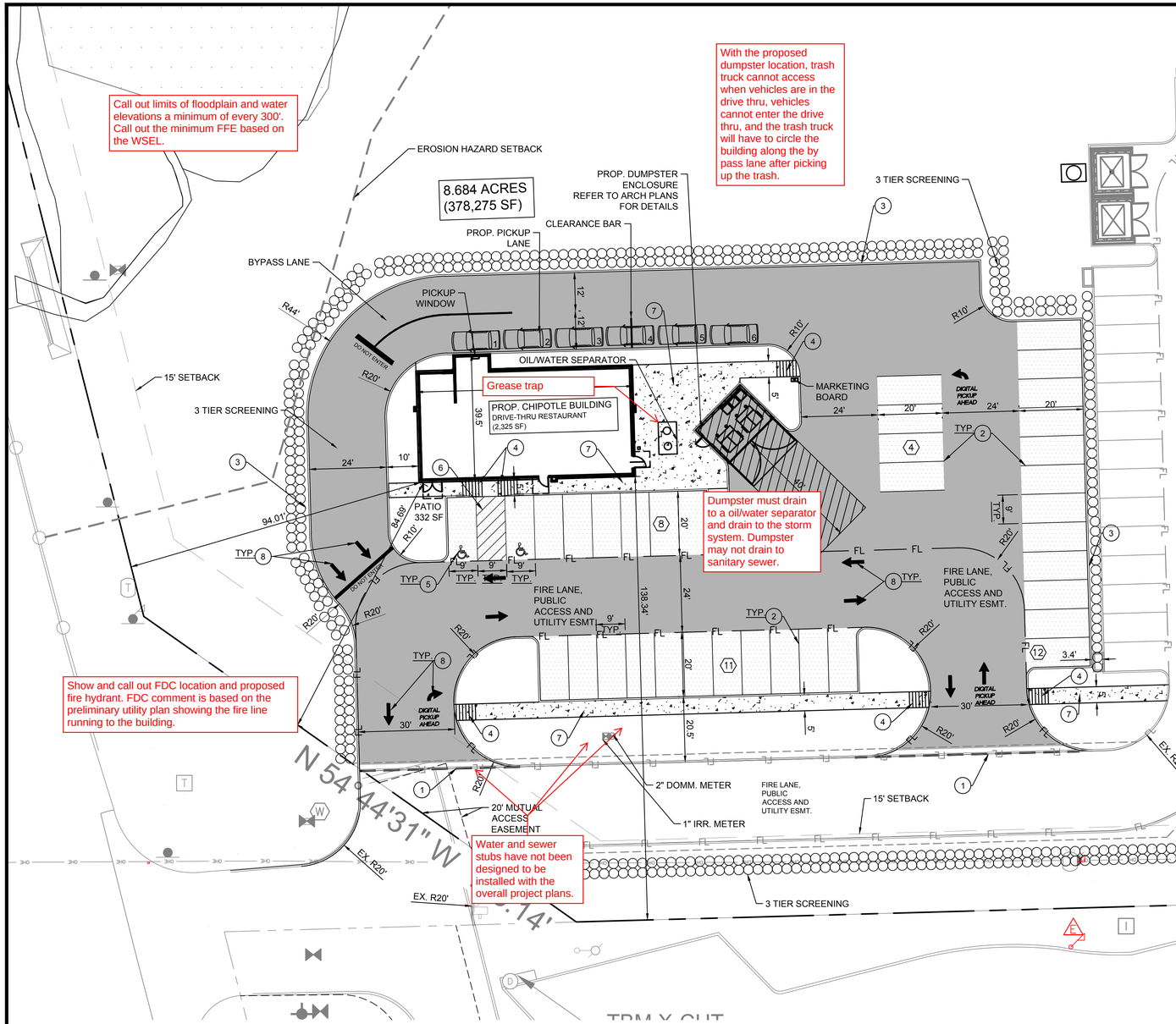
10/17/2022: Assigned address will be 3000 North Goliad Street, Rockwall, TX 75087

DEPARTMENT	REVIEWER	DATE OF REVIEW	STATUS OF PROJECT
POLICE	Chris Cleveland	10/17/2022	Approved

No Comments

DEPARTMENT	REVIEWER	DATE OF REVIEW	STATUS OF PROJECT
PARKS	Henry Lee	12/19/2022	N/A

No Comments



General Items:
- Must meet City Standards of Design and Construction
- 4% Engineering Inspection Fees
- Impact Fees (Water, Wastewater & Roadway)
- Minimum easement width is 20' for new easements. No structures including walls allowed in easements.
- Must show proposed and existing water and sewer lines on this plan

Drainage Items:
- Detention is accounted for previously. Must follow the same drainage divide line that was established previously.
- Dumpster areas to drain to oil/water separator and then to the storm lines.

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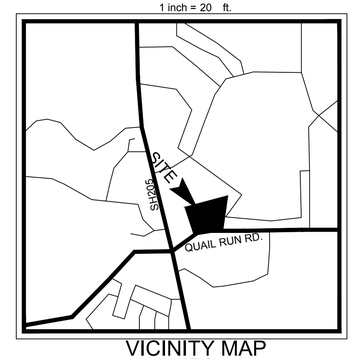
- No tree to be planted on top of meters.

GRAPHIC SCALE
20 0 10 20 40
1 inch = 20 ft.



VICINITY MAP
N.T.S.

CONSTRUCTION SCHEDULE	
	PROPOSED STANDARD DUTY CONCRETE PAVEMENT
	PROPOSED HEAVY DUTY CONCRETE PAVEMENT
	PROPOSED SIDEWALK CONCRETE PAVEMENT
	PROPERTY LINE
	PROPOSED CONCRETE CURB AND GUTTER
FL	PROPOSED FIRE LANE, PUBLIC ACCESS ADN UTILITY EASEMENT
	PROPOSED SAWCUT
4	PARKING COUNT

CONSTRUCTION SCHEDULE	
1	PROP. FULL DEPTH SAWCUT
2	PROP. 4" PARKING STALL STRIPING COLOR: WHITE (TYP)
3	PROP. CURB & GUTTER
4	PROP. PEDESTRIAN RAMP
5	PROP. HANDICAP SYMBOL
6	PROP. PAVEMENT STRIPING
7	PROP. SIDEWALK
8	PROP. ARROW PAVEMENT STRIPING

PARKING DATA TABLE	
PARKING REQ.	
DRIVE-THRU RESTAURANT (2,325 SF) 1/ 100 SF	24 SPACES
STANDARD PARKING	33 SPACES
ADA PARKING	2 SPACES
PARKING PROVIDED	35 SPACES (2 ADA)

SITE DATA TABLE			
	PHASE 2 (CHIPOTLE)	PHASE 1 (EXISTING)	TOTAL
SITE AREA	8.684 AC (378,275 SF)	8.684 AC (378,275 SF)	8.684 AC (378,275 SF)
ZONING	PD-70	PD-70	PD-70
PROPOSED USE	DRIVE-THRU RESTAURANT	RETAIL/ DRIVE-THRU RESTAURANT	RETAIL/ DRIVE-THRU RESTAURANT
BUILDING SIZE	2,325 SF	BUILDING B- 10,000 SF BUILDING C- 10,OOO SF	20,325 SF
PATIO AREA	332 SF	2,777 SF	3,109 SF
LOT COVERAGE	.06 %	5.2 %	5.26 %
FLOOR TO AREA RATIO	0.00 : 1	0.05 : 1	0.06 :1
BUILDING STORIES	1 STORY	1 STORY	1 STORY
TOTAL IMPERVIOUS	29,064 SF (0.8%)	116,406 SF (30.8%)	145,138 SF (38.3%)
OPEN SPACE	8.62 AC (92 %)	6.04 AC (69.2%)	5.4 AC (61.7 %)

TBM #1 - ELEV: 507.40
AN "X" CUT SET APPROXIMATELY 44.2' SOUTH AND 46.9' WEST FROM THE SOTUH EAST PROPERTY CORNER ALONG QUAL RD.

TBM #2 - ELEV: 489.60
AND "X" CUT SET APPROXIMATELY 16.6' SOUTH AND 18.6' WEST FROM THE SOTUWEST PROPERTY CORNER ALONG QUAL RD.

TBM #3 - ELEV: 486.4
AND "X" CUT SET APPROXIMATELY 176.7' SOUTH AND 103.1' EAST FROM THE SOTUH EAST PROPERTY CORNER ALONG QUAIL RD.

ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN.

NOTES:
1. A SEPARATE SIGNAGE PERMIT IS REQUIRED BY THE CITY OF ROCKWALL.
2. ALL WALLS 3' IN HEIGHT OR GREATER SHALL BE DESIGNED BY AN ENGINEER, LICENSED IN THE STATE OF TEXAS.
3. ALL WALLS MUST BE ROCK OR STONE FACE. NO WALLS SHALL BE SMOOTH CONCRETE.
4. NO TREES SHALL BE PLANTED WITHIN 10' OF NON-STEEL ENCASED PUBLIC UTILITIES.
5. SOD MUST BE LAID WITHIN ALL DISTURBED R.O.W. BEFORE ACCEPTANCE OF PROJECT.

DUWEST ROCKWALL, TX

LEGAL DESCRIPTION AND OR ADDRESS:

STONE CREEK BALANCE LTD
ABSTRACT. NO 131
8.684 AC (378,275 SF)

OWNER:
DuWEST REALTY, LLC
4403 N.CENTRAL EXWAY SUITE #200
DALLAS, TX 75025
CONTACT: BOWEN HENDRIX
PH: 214.918.1804

APPLICANT:
CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
PH: 817.281.0572

CASE NUMBER

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING AND ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____.

WITNESS OUR HANDS THIS ____ DAY OF _____.

PLANNING AND ZONING COMMISSION, CHAIRMAN

DIRECTOR OF PLANNING AND ZONING

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM
1903 CENTRAL DR, SUITE #406
BEDFORD, TX 76021

PRELIMINARY
FOR REVIEW ONLY
Not for construction purposes.
CLAYMOORE ENGINEERING
ENGINEERING AND PLANNING CONSULTANTS
Engineer DREW DONOSKY
P.E. No. 125651 Date 10/19/2022

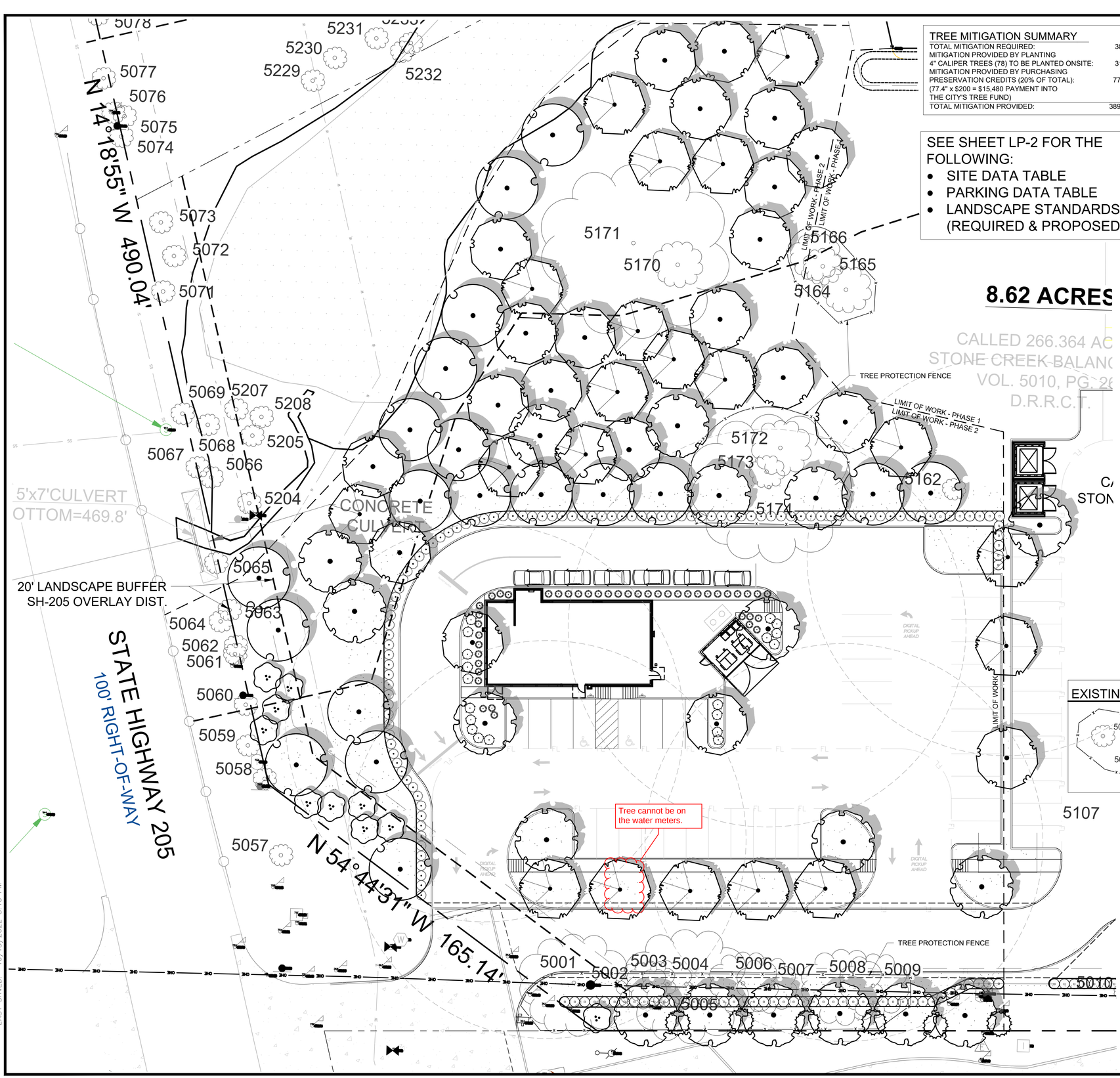
DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

CITY SITE PLAN

DESIGN: LRR
DRAWN: LRR
CHECKED: CLC
DATE: 10/19/2022
SHEET
SP-1
File No. 2022-002

CASE # Z2022-042

PLOTTED BY: LYNN ROWLAND
PLOT DATE: 10/19/2022 1:36 PM
LOCATION: Z:\PROJECTS\PROJECTS\2022-175 DUWEST ROCKWALL PH. 2\CADD\SHEETS\SP-1 SITE PLAN.DWG
LAST SAVED: 10/12/2022 8:02 AM



TREE MITIGATION SUMMARY	
TOTAL MITIGATION REQUIRED:	387"
MITIGATION PROVIDED BY PLANTING 4" CALIPER TREES (78) TO BE PLANTED ONSITE:	312"
MITIGATION PROVIDED BY PURCHASING PRESERVATION CREDITS (20% OF TOTAL): (77.4" x $200 = $15,480 PAYMENT INTO THE CITY'S TREE FUND)	77.4"
TOTAL MITIGATION PROVIDED:	389.4"

SEE SHEET LP-2 FOR THE FOLLOWING:

- SITE DATA TABLE
- PARKING DATA TABLE
- LANDSCAPE STANDARDS (REQUIRED & PROPOSED)

PLANT SCHEDULE

CANOPY TREES	QTY	BOTANICAL / COMMON NAME	CAL	SIZE
	20	ACER RUBRUM 'OCTOBER GLORY' OCTOBER GLORY MAPLE	4" CAL.	16'-18' HT
	19	QUERCUS POLYMORPHA MEXICAN WHITE OAK	4" CAL MIN	14`-16` HT
	19	QUERCUS VIRGINIANA LIVE OAK	4" CAL MIN	14`-16` HT
	20	ULMUS CRASSIFOLIA CEDAR ELM	4" CAL.	16`-18` HT

ACCENT TREES	QTY	BOTANICAL / COMMON NAME	CAL	SIZE
	10	CERCIS CANADENSIS EASTERN REDBUD 3-5 STEMS	2" CAL MIN	8` -10` HT
	6	ILEX VOMITORIA YAUPON HOLLY	2" CAL MIN	8` -10` HT

SHRUBS	QTY	BOTANICAL / COMMON NAME	CONT
	43	HESPERALOE PARVIFLORA RED YUCCA	3 GAL
	90	ILEX CORNUTA 'DWF. BURFORD' DWARF BURFORD HOLLY	5 GAL
	19	LANTANA X `NEW GOLD` NEW GOLD LANTANA	3 GAL
	57	MYRTUS COMMUNIS 'DON'S DWARF' DON'S DWARF WAX MYRTLE	5 GAL

GROUND COVER	QTY	BOTANICAL / COMMON NAME	CONT
	14,665 SF	CYNODON 'TIFWAY 419' TIFWAY 419 BERMUDA GRASS	SOD

NOTE: THE DEVELOPER SHALL ESTABLISH GRASS AND MAINTAIN THE SODDED AREA, INCLUDING WATERING, UNTIL A PERMANENT STAND OF GRASS IS OBTAINED AT WHICH TIME THE PROJECT WILL BE ACCEPTED BY THE CITY. A STAND OF GRASS SHALL CONSIST OF 75%-80% COVERAGE AND A MINIMUM O F 1" IN HEIGHT AS DETERMINED BY THE CITY.

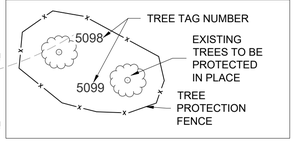
MULCHES

AFTER ALL PLANTING IS COMPLETE, CONTRACTOR SHALL INSTALL 3" THICK LAYER OF 1-1/2" SHREDDED WOOD MULCH, NATURAL (UNDYED), IN ALL PLANTING AREAS (EXCEPT FOR TURF AND SEEDED AREAS). CONTRACTOR SHALL SUBMIT SAMPLES OF ALL MULCHES TO LANDSCAPE ARCHITECT AND OWNER FOR APPROVAL PRIOR TO CONSTRUCTION. ABSOLUTELY NO EXPOSED GROUND SHALL BE LEFT SHOWING ANYWHERE ON THE PROJECT AFTER MULCH HAS BEEN INSTALLED (SUBJECT TO THE CONDITIONS AND REQUIREMENTS OF THE "GENERAL GRADING AND PLANTING NOTES" AND SPECIFICATIONS).

ROOT BARRIERS

THE CONTRACTOR SHALL INSTALL ROOT BARRIERS NEAR ALL NEWLY-PLANTED TREES THAT ARE LOCATED WITHIN FIVE (5) FEET OF PAVING OR CURBS. ROOT BARRIERS SHALL BE "CENTURY" OR "DEEP-ROOT" 24" DEEP PANELS (OR EQUAL). BARRIERS SHALL BE LOCATED IMMEDIATELY ADJACENT TO HARDSCAPE. INSTALL PANELS PER MANUFACTURER'S RECOMMENDATIONS. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR USE ROOT BARRIERS OF A TYPE THAT COMPLETELY ENCIRCLE THE ROOTBALL.

EXISTING TREE LEGEND



Scale 1" = 20'

DUWEST ROCKWALL, TX

LEGAL DESCRIPTION AND OR ADDRESS:

STONE CREEK BALANCE LTD
ABSTRACT. NO 131
8.684 AC (378,275 SF)

OWNER:
DuWEST REALTY, LLC
4403 N.CENTRAL EXWAY SUITE #200
DALLAS, TX 75025
CONTACT: BOWEN HENDRIX
PH: 214.918.1804

APPLICANT:
CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
PH: 817.281.0572

CASE NUMBER
Z2022-003

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING AND ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____.

WITNESS OUR HANDS THIS ____ DAY OF _____.

PLANNING AND ZONING COMMISSION, CHAIRMAN

DIRECTOR OF PLANNING AND ZONING

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
1903 CENTRAL DR, SUITE #406
BEDFORD, TX 76021
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM

REGISTERED LANDSCAPE ARCHITECT
DARCY R. BRANDON
3423
STATE OF TEXAS

10/13/2022

DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

EVERGREEN DESIGN GROUP
(800) 680-6630
15455 Dallas Pkwy., Ste 600
Addison, TX 75001
www.EvergreenDesignGroup.com

LANDSCAPE PLANTING PLAN

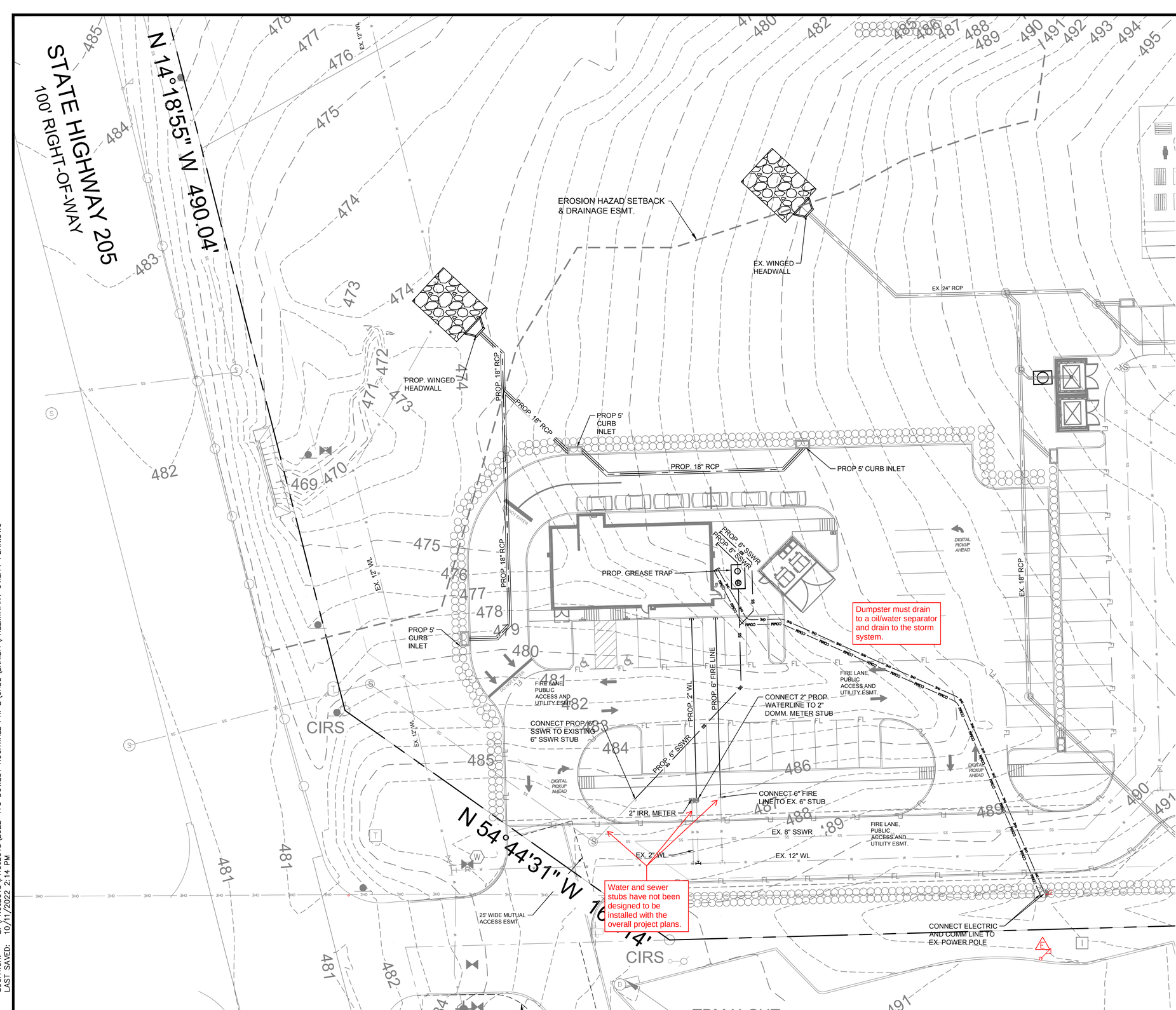
DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	10/13/2022

SHEET
LP-1

File No. 2022-002

CASE # SP2022-042

PLOTTED BY: DARCY BRANDON
PLOT DATE: 10/13/2022 3:12 PM
LOCATION: C:\USERS\DARCY\DOCUMENTS\DBLA_PROJECTS\2022\EDG\CHIPOLTE DUWEST - ROCKWALL, TX\XREFS\2022-10-10 DUWEST ROCKWALL PHASE 2.DWG
LAST SAVED: 10/13/2022 3:10 PM



GRAPHIC SCALE

20 0 10 20 40

1 inch = 20 ft.

LEGEND	
W	EXISTING WATER MAIN
SS (S)	EXISTING SANITARY SEWER AND MANHOLE
W	PROPOSED WATER LINE
SS (S)	PROPOSED SANITARY SEWER LINE AND MANHOLE
SS	PROPOSED SANITARY SEWER LINE AND CLEAN OUT
COMM	PROPOSED COMMUNICATION LINE
UGE	PROPOSED UNDERGROUND ELECTRICAL LINE
	EXISTING OVERHEAD POWER LINE

LEGEND	
695	EX. CONTOURS
	STORM DRAIN
	CURB INLET

DUWEST ROCKWALL PH 2, TX

LEGAL DESCRIPTION AND OR ADDRESS:

STONE CREEK BALANCE LTD
ABSTRACT. NO 131
8.684 AC (378,275 SF)

OWNER:

DuWEST REALTY, LLC
4403 N.CENTRAL EXWAY SUITE #200
DALLAS, TX 75025
CONTACT: BOWEN HENDRIX
PH: 214.918.1804

APPLICANT:

CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
PH: 817.281.0572

CASE NUMBER

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WITNESS OUR HANDS THIS ____ DAY OF _____.

_____
PLANNING AND ZONING COMMISSION, CHAIRMAN

_____
DIRECTOR OF PLANNING AND ZONING

TEXAS REGISTRATION #14199

CLAYMOORE ENGINEERING

1903 CENTRAL DR. SUITE #406
BEDFORD, TX 76021
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM

PRELIMINARY

FOR REVIEW ONLY
Not for construction purposes.

CLAYMOORE ENGINEERING
ENGINEERING AND PLANNING CONSULTANTS
Engineer DREW DONOSKY
P.E. No. 125651 Date 12/12/2022

DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

PRELIMINARY UTILITY PLAN

DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	12/12/2022

SHEET

C-1

File No. 2022-002

CASE #

PLOTTED BY: LYNN ROWLAND
PLOT DATE: 12/12/2022 8:34 AM
LOCATION: Z:\PROJECTS\PROJECTS\2022-175 DUWEST ROCKWALL PH. 2\CADD\EXHIBIT\PRELIMINARY UTILITY PLAN.DWG
LAST SAVED: 10/11/2022 2:14 PM

DEVELOPMENT APPLICATION

City of Rockwall
Planning and Zoning Department
385 S. Goliad Street
Rockwall, Texas 75087

STAFF USE ONLY

PLANNING & ZONING CASE NO.

NOTE: THE APPLICATION IS NOT CONSIDERED ACCEPTED BY THE CITY UNTIL THE PLANNING DIRECTOR AND CITY ENGINEER HAVE SIGNED BELOW.

DIRECTOR OF PLANNING:

CITY ENGINEER:

PLEASE CHECK THE APPROPRIATE BOX BELOW TO INDICATE THE TYPE OF DEVELOPMENT REQUEST [SELECT ONLY ONE BOX]:

PLATTING APPLICATION FEES:
- ☐ MASTER PLAT ($100.00 + $15.00 ACRE) [1]
- ☐ PRELIMINARY PLAT ($200.00 + $15.00 ACRE) [1]
- ☐ FINAL PLAT ($300.00 + $20.00 ACRE) [1]
- ☐ REPLAT ($300.00 + $20.00 ACRE) [1]
- ☐ AMENDING OR MINOR PLAT ($150.00)
- ☐ PLAT REINSTATEMENT REQUEST ($100.00)

SITE PLAN APPLICATION FEES:
- ☑ SITE PLAN ($250.00 + $20.00 ACRE) [1]
- ☐ AMENDED SITE PLAN/ELEVATIONS/LANDSCAPING PLAN ($100.00)

ZONING APPLICATION FEES:
- ☐ ZONING CHANGE ($200.00 + $15.00 ACRE) [1]
- ☐ SPECIFIC USE PERMIT ($200.00 + $15.00 ACRE) [1]
- ☐ PD DEVELOPMENT PLANS ($200.00 + $15.00 ACRE) [1]

OTHER APPLICATION FEES:
- ☐ TREE REMOVAL ($75.00)
- ☐ VARIANCE REQUEST ($100.00)

NOTES:
[1]: IN DETERMINING THE FEE, PLEASE USE THE EXACT ACREAGE WHEN MULTIPLYING BY THE PER ACRE AMOUNT FOR REQUESTS ON LESS THAN ONE ACRE, ROUND UP TO ONE (1) ACRE.

PROPERTY INFORMATION [PLEASE PRINT]

ADDRESS: not yet assigned*

SUBDIVISION: LOT: BLOCK:

GENERAL LOCATION: NEC E Quail Run Road and 205

ZONING, SITE PLAN AND PLATTING INFORMATION [PLEASE PRINT]

CURRENT ZONING: PD-70
PROPOSED ZONING: PD-70
ACREAGE: 8.684 AC LOTS [CURRENT]:

CURRENT USE: Undeveloped land
PROPOSED USE: Commercial (Retail)
LOTS [PROPOSED]:

☐ ***SITE PLANS AND PLATS:*** *BY CHECKING THIS BOX YOU ACKNOWLEDGE THAT DUE TO THE PASSAGE OF HB3167 THE CITY NO LONGER HAS FLEXIBILITY WITH REGARD TO ITS APPROVAL PROCESS, AND FAILURE TO ADDRESS ANY OF STAFF'S COMMENTS BY THE DATE PROVIDED ON THE DEVELOPMENT CALENDAR WILL RESULT IN THE DENIAL OF YOUR CASE.*

OWNER/APPLICANT/AGENT INFORMATION [PLEASE PRINT/CHECK THE PRIMARY CONTACT/ORIGINAL SIGNATURES ARE REQUIRED]

☐ OWNER
CONTACT PERSON:
ADDRESS:
CITY, STATE & ZIP:
PHONE:
E-MAIL:

☑ APPLICANT: DuWest Realty, LLC
CONTACT PERSON: Bowen Hendrix
ADDRESS: 4403 North Central Expressway
Suite 200
CITY, STATE & ZIP: Dallas, TX 75025
PHONE: (214) 918-1804
E-MAIL: bowen@duwestrealty.com

NOTARY VERIFICATION [REQUIRED]

BEFORE ME, THE UNDERSIGNED AUTHORITY, ON THIS DAY PERSONALLY APPEARED Bowen Hendrix [OWNER] THE UNDERSIGNED, WHO STATED THE INFORMATION ON THIS APPLICATION TO BE TRUE AND CERTIFIED THE FOLLOWING:

"I HEREBY CERTIFY THAT I AM THE OWNER FOR THE PURPOSE OF THIS APPLICATION; ALL INFORMATION SUBMITTED HEREIN IS TRUE AND CORRECT; AND THE APPLICATION FEE OF $ 230.26 *TO COVER THE COST OF THIS APPLICATION, HAS BEEN PAID TO THE CITY OF ROCKWALL ON THIS THE* January *DAY OF* 2022. *BY SIGNING THIS APPLICATION, I AGREE THAT THE CITY OF ROCKWALL (I.E. "CITY") IS AUTHORIZED AND PERMITTED TO PROVIDE INFORMATION CONTAINED WITHIN THIS APPLICATION TO THE PUBLIC. THE CITY IS ALSO AUTHORIZED AND PERMITTED TO REPRODUCE ANY COPYRIGHTED INFORMATION SUBMITTED IN CONJUNCTION WITH THIS APPLICATION, IF SUCH REPRODUCTION IS ASSOCIATED OR IN RESPONSE TO A REQUEST FOR PUBLIC INFORMATION."*

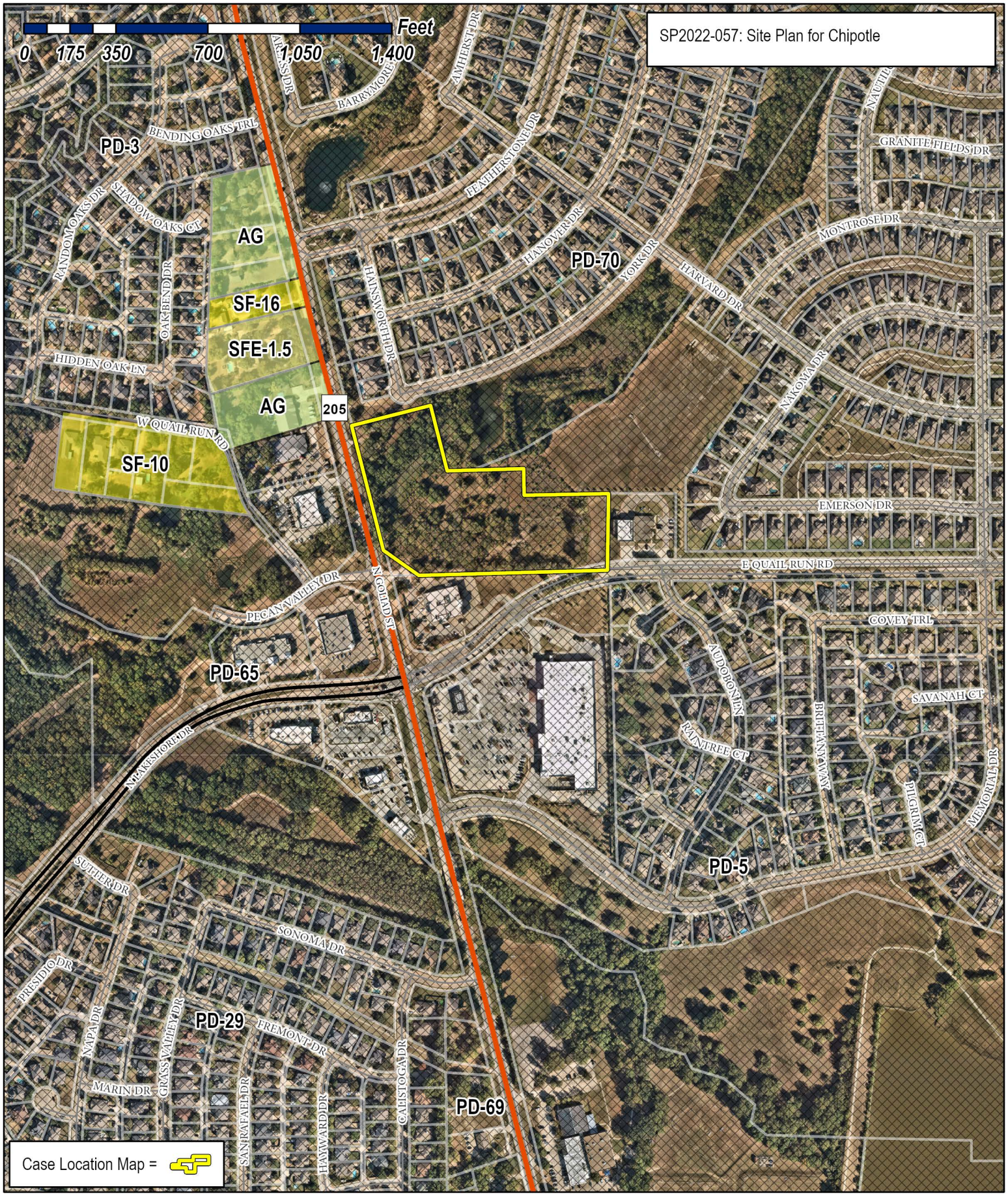
GIVEN UNDER MY HAND AND SEAL OF OFFICE ON THIS THE 11 *DAY OF* January *20* 22

OWNER'S SIGNATURE

NOTARY PUBLIC IN AND FOR THE STATE OF TEXAS Lisa Caldwell

LISA DIANE CALDWELL
Notary ID #742049
My Commission Expires
May 26, 2025

MY COMMISSION EXPIRES



City of Rockwall

Planning & Zoning Department
385 S. Goliad Street
Rockwall, Texas 75087
(P): (972) 771-7745
(W): www.rockwall.com

The City of Rockwall GIS maps are continually under development and therefore subject to change without notice. While we endeavor to provide timely and accurate information, we make no guarantees. The City of Rockwall makes no warranty, express or implied, including warranties of merchantability and fitness for a particular purpose. Use of the information is the sole responsibility of the user.

513 Main Street
Suite 300
Fort Worth, Texas 76102
Office: 817.820.0433
Fax: 682.224.8917
roguearchitects.com

ROGUE ARCHITECTS

December 7, 2022

Chipotle Mexican Grill (Shell)
NWQ N. Goliad & E. Quail Run Rd
Rockwall, TX 75087

On behalf of DuWest Realty, we wish to submit a variance request to the City of Rockwall Planning and Zoning Department as part of our façade elevation plan submittal.

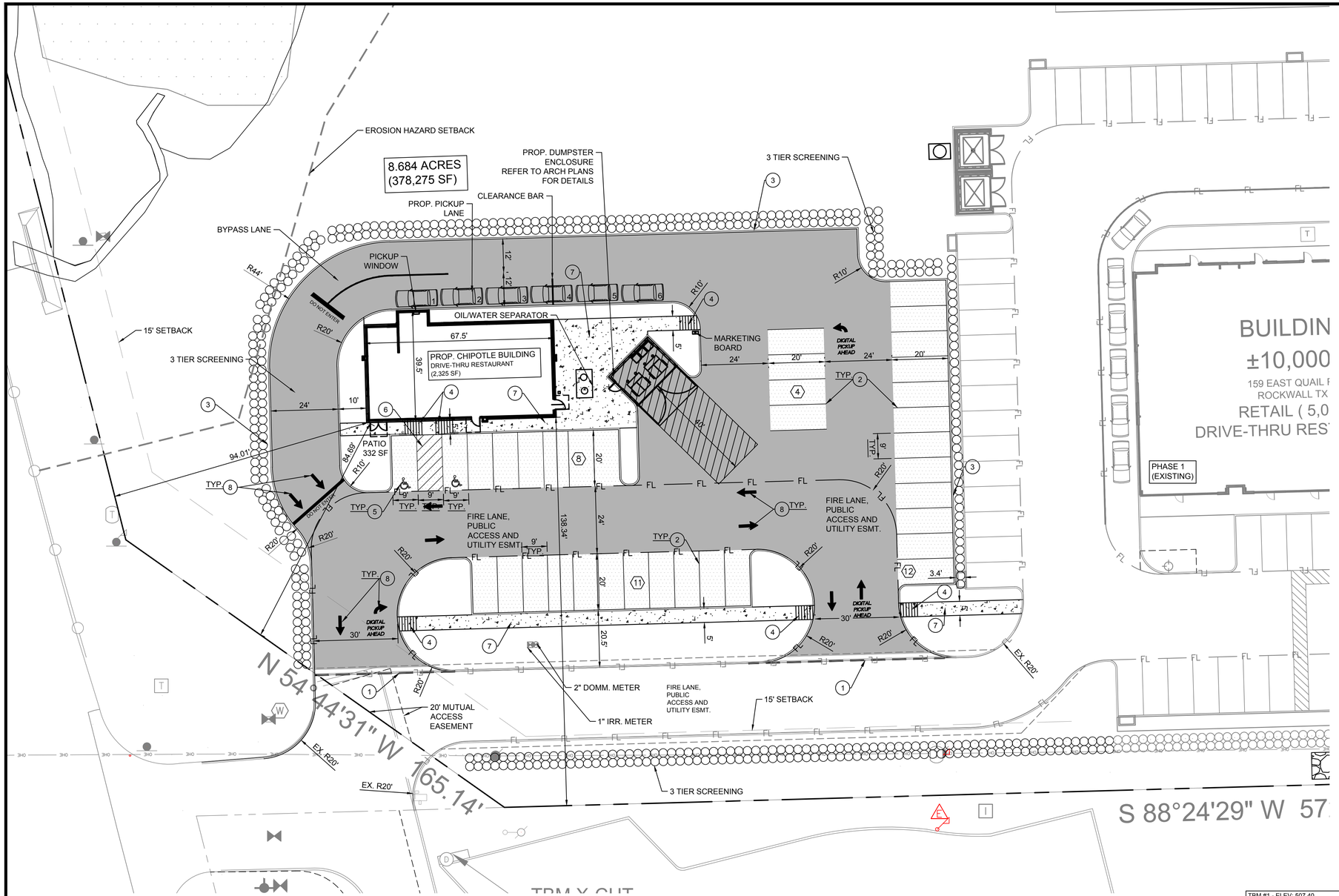
Chipotle Mexican Grill, to be located in Stone Creek Balance Ltd. Abstract No. 131 proposed new build will use materials consistent with the surrounding building in the overlay district. The design incorporates cantilevered canopies, recesses and projections (main entry), an outdoor patio, architecturally detailed herringbone brick on the pickup lane side of the building, an articulated cornice line, and varied parapet heights.

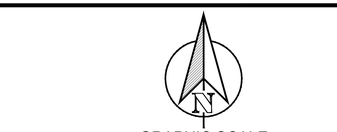
We request the following variance:

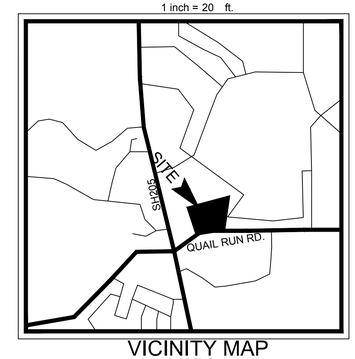
1. Roof Design Standards: Pitched roof for buildings under 6,000 sqft.
    a. Additional masonry detailing has been provided to exceed architectural design requirements. Owner wishes the be granted a variance to preserve corporate identity.

Thank you for your consideration,

Taylor Grandorf
Architect | Project Manager
817-820-0433







VICINITY MAP
N.T.S.

CONSTRUCTION SCHEDULE	
	PROPOSED STANDARD DUTY CONCRETE PAVEMENT
	PROPOSED HEAVY DUTY CONCRETE PAVEMENT
	PROPOSED SIDEWALK CONCRETE PAVEMENT
	PROPERTY LINE
	PROPOSED CONCRETE CURB AND GUTTER
FL	PROPOSED FIRE LANE, PUBLIC ACCESS ADN UTILITY EASEMENT
	PROPOSED SAWCUT
4	PARKING COUNT

CONSTRUCTION SCHEDULE	
1	PROP. FULL DEPTH SAWCUT
2	PROP. 4" PARKING STALL STRIPING COLOR: WHITE (TYP)
3	PROP. CURB & GUTTER
4	PROP. PEDESTRIAN RAMP
5	PROP. HANDICAP SYMBOL
6	PROP. PAVEMENT STRIPING
7	PROP. SIDEWALK
8	PROP. ARROW PAVEMENT STRIPING

PARKING DATA TABLE	
PARKING REQ.	
DRIVE-THRU RESTAURANT (2,325 SF) 1/ 100 SF	24 SPACES
STANDARD PARKING	33 SPACES
ADA PARKING	2 SPACES
PARKING PROVIDED	35 SPACES (2 ADA)

SITE DATA TABLE			
	PHASE 2 (CHIPOTLE)	PHASE 1 (EXISTING)	TOTAL
SITE AREA	8.684 AC (378,275 SF)	8.684 AC (378,275 SF)	8.684 AC (378,275 SF)
ZONING	PD-70	PD-70	PD-70
PROPOSED USE	DRIVE-THRU RESTAURANT	RETAIL/ DRIVE-THRU RESTAURANT	RETAIL/ DRIVE-THRU RESTAURANT
BUILDING SIZE	2,325 SF	BUILDING B- 10,000 SF BUILDING C- 10,OOO SF	20,325 SF
PATIO AREA	332 SF	2,777 SF	3,109 SF
LOT COVERAGE	.06 %	5.2 %	5.26 %
FLOOR TO AREA RATIO	0.00 : 1	0.05 : 1	0.06 :1
BUILDING STORIES	1 STORY	1 STORY	1 STORY
TOTAL IMPERVIOUS	29,064 SF (0.8%)	116,406 SF (30.8%)	145,138 SF (38.3%)
OPEN SPACE	8.62 AC (92 %)	6.04 AC (69.2%)	5.4 AC (61.7 %)

TBM #1 - ELEV: 507.40
AN "X" CUT SET APPROXIMATELY 44.2' SOUTH AND 46.9' WEST FROM THE SOTUH EAST PROPERTY CORNER ALONG QUAL RD.

TBM #2 - ELEV: 489.60
AND "X" CUT SET APPROXIMATELY 16.6' SOUTH AND 18.6' WEST FROM THE SOTUWEST PROPERTY CORNER ALONG QUAL RD.

TBM #3 - ELEV: 486.4
AND "X" CUT SET APPROXIMATELY 176.7' SOUTH AND 103.1' EAST FROM THE SOTUH EAST PROPERTY CORNER ALONG QUAIL RD.

ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN.

NOTES:

1. A SEPARATE SIGNAGE PERMIT IS REQUIRED BY THE CITY OF ROCKWALL.
2. ALL WALLS 3' IN HEIGHT OR GREATER SHALL BE DESIGNED BY AN ENGINEER, LICENSED IN THE STATE OF TEXAS.
3. ALL WALLS MUST BE ROCK OR STONE FACE. NO WALLS SHALL BE SMOOTH CONCRETE.
4. NO TREES SHALL BE PLANTED WITHIN 10' OF NON-STEEL ENCASED PUBLIC UTILITIES.
5. SOD MUST BE LAID WITHIN ALL DISTURBED R.O.W. BEFORE ACCEPTANCE OF PROJECT.

DUWEST ROCKWALL, TX

LEGAL DESCRIPTION AND OR ADDRESS:

STONE CREEK BALANCE LTD
ABSTRACT. NO 131
8.684 AC (378,275 SF)

OWNER:
DuWEST REALTY, LLC
4403 N.CENTRAL EXWAY SUITE #200
DALLAS, TX 75025
CONTACT: BOWEN HENDRIX
PH: 214.918.1804

APPLICANT:
CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
PH: 817.281.0572

CASE NUMBER

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING AND ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____.

WITNESS OUR HANDS THIS ____ DAY OF _____.

PLANNING AND ZONING COMMISSION, CHAIRMAN

DIRECTOR OF PLANNING AND ZONING

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
1903 CENTRAL DR, SUITE #406
BEDFORD, TX 76021
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM

PRELIMINARY
FOR REVIEW ONLY
Not for construction purposes.
CLAYMOORE ENGINEERING
ENGINEERING AND PLANNING CONSULTANTS
Engineer DREW DONOSKY
P.E. No. 125651 Date 10/19/2022

DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

CITY SITE PLAN

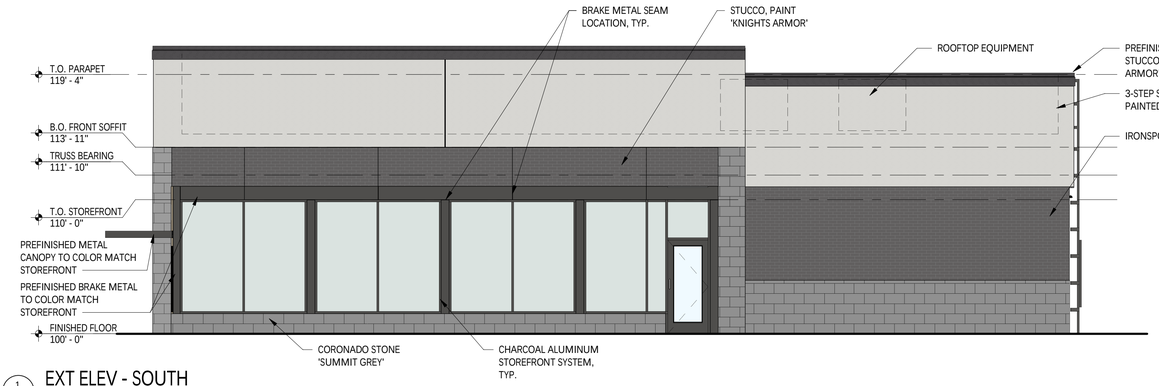
DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	10/19/2022

SHEET
SP-1

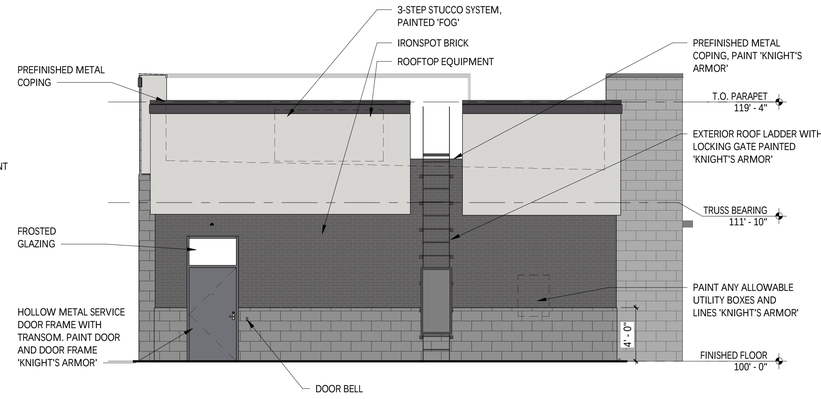
File No. 2022-002

CASE # Z2022-042

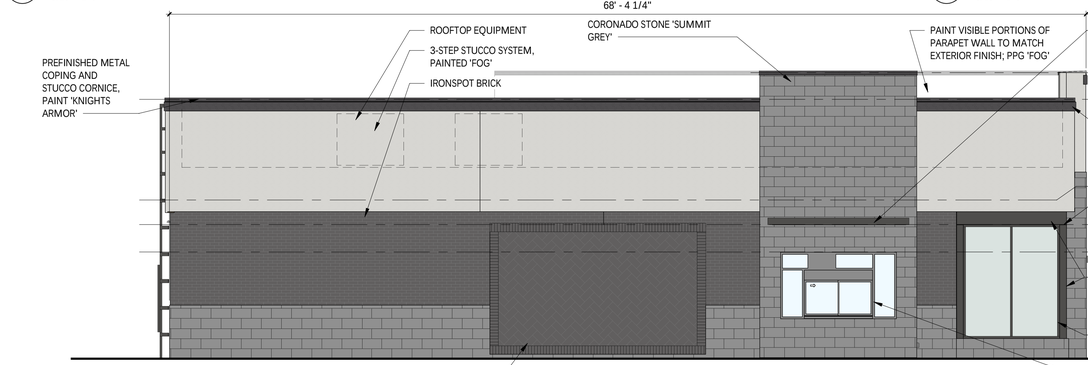
PLOTTED BY: LYNN ROWLAND
PLOT DATE: 10/19/2022 1:36 PM
LOCATION: Z:\PROJECTS\PROJECTS\2022-175 DUWEST ROCKWALL PH. 2\CADD\SHEETS\SP-1 SITE PLAN.DWG
LAST SAVED: 10/12/2022 8:02 AM



1 / F000 EXT ELEV - SOUTH
3/16" = 1'-0"



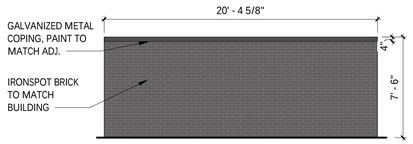
3 / F000 EXT ELEV - WEST
3/16" = 1'-0"



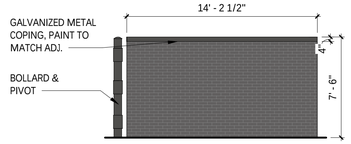
2 / F000 EXT ELEV - EAST
3/16" = 1'-0"

4 / F000 EXT ELEV - NORTH
3/16" = 1'-0"

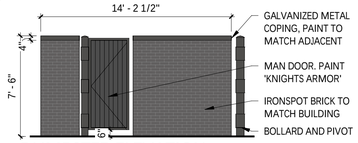
IRONSPOT BRICK HERRINGBONE ACCENT WALL



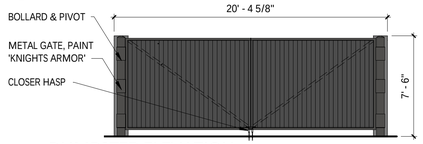
10 / F000 DUMPSTER ELEVATION
3/16" = 1'-0"



11 / F000 DUMPSTER ELEVATION
3/16" = 1'-0"

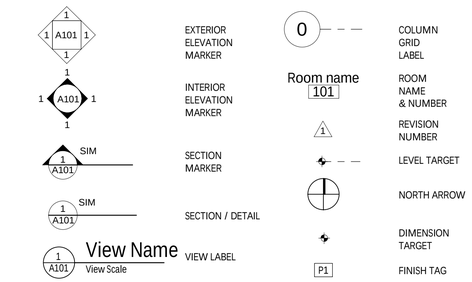


9 / F000 DUMPSTER ELEVATION
3/16" = 1'-0"



8 / F000 DUMPSTER ELEVATION
3/16" = 1'-0"

SYMBOLS LEGEND
12" = 1'-0"



GENERAL NOTES

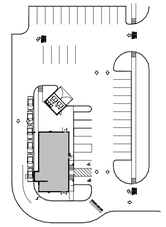
1. THIS FACADE PLAN IS FOR CONCEPTUAL PURPOSES ONLY. ALL BUILDING PLANS REQUIRE REVIEW AND APPROVAL BY DEVELOPMENT SERVICES.
2. ALL MECHANICAL UNITS SHALL BE SCREENED FROM PUBLIC VIEW AS REQUIRED BY THE ZONING ORDINANCE.
3. WHEN PERMITTED, EXPOSED UTILITY BOXES AND CONDUITS SHALL BE PAINTED TO MATCH THE BUILDING.
4. ALL SIGNAGE AREAS AND LOCATIONS ARE SUBJECT TO APPROVAL BY DEVELOPMENT SERVICES.
5. AN ONSITE MOCKUP OF THE BUILDING MATERIALS TO BE USED ON THE STRUCTURE SHALL BE INSTALLED AND REVIEWED BY THE PLANNING DIVISION. MATERIALS SHALL NOT BE PLACED ONT HE STRUCTURE UNTIL A GREEN TAG IS RECEIVED BY THE PLANNING DIVISION.
6. AN APPROVED FACADE PLAN SHALL BE POSED ONSITE AT ALL TIMES.

FINISH MATERIALS

STONE		**CORONADO STONE** SUMMIT GREY VENEER
BRICK		**ENDICOTT IRONSPOT** DARK IRONSPOT
STUCCO		3-STEP STUCCO PPG 'FOG'
MT-01		METAL PPG 'KNIGHTS ARMOR'
STRFNT		**KAWNEER** PERMAFLOUR CHARCOAL

NOTE: THREE COAT STUCCO IS APPLIED IN THREE LAYERS. 3/8-INCH THICK SCRATCH COAT, 3/8-INCH THICK BROWN COAT, AND APPROXIMATE 1/8 INCH THICK FINISH COAT. THE APPROXIMATELY 7/8-INCH THREE COAT SYSTEM IS APPLIED OVER AN APPROVED WEATHER-RESISTIVE BARRIER AND METAL LATH EITHER BY HAND USING A TROWEL OR BY MACHINE APPLICATION

KEY - SITE PLAN



0 8' 16' 24' 32'
Scale: 3/16" = 1'-0"

MATERIAL CALCULATION										
	NORTH		EAST		SOUTH		WEST		TOTAL	
MATERIAL	S.F.	%	S.F.	%	S.F.	%	S.F.	%	S.F.	%
TOTAL ELEVATION AREA	1319	100	762	100	1393	100	813	100	4287	100
NON-GLAZED DOORS AND WINDOWS	0	0%	28	3.67%	0	0%	0	0%	28	0.78%
GLAZED DOORS AND WINDOWS	90	6.82	9	1.18%	326	23.40%	255	31.37%	680	15.86%
TOTAL (WITHOUT GLAZED/NON-GLAZED...	1229	93.18	753	98.82%	1067	76.60%	558	68.63%	3607	84.14%
STONE	412	33.52%	232	30.81%	215	20.15%	180	32.26%	1039	28.81%
IRON SPOT BRICK - TO MATCH ADJACENT BUILDING	380	30.92%	237	31.47%	287	26.90%	64	11.47%	968	26.84%
STUCCO (3 STEP)	420	34.17%	250	33.20%	500	46.86%	272	48.75%	1442	39.98%
METAL ACCENT	17	1.38%	6	0.80%	65	6.09%	42	31.37%	130	3.60%

RESTAURANT WITH DRIVE-THRU
STONE CREEK BALANCE LTD
ABSTRACT NO 131

FACADE PLAN: #
SUBMITTAL DATE: 12/12/2022

ARCHITECT:
ROGUE ARCHITECTS
513 MAIN STREET, STE 300
FORT WORTH, TX 76102
CONTACT: ASHLEY MORELAND
T: (817) 820-0433

OWNER:
DUWEST REALTY
4403 N. CENTRAL EXPWY, #200
DALLAS, TX 75205
CONTACT: BOWEN HENDRIX
T: (214) 918-1804

ENGINEER
CLAYMOORE ENGINEERING
903 CENTRAL DRIVE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
T: (817) 281-0572

Consultant:
ARCHITECT OF RECORD
ROGUE ARCHITECTS
513 MAIN STREET, SUITE 300
FORT WORTH, TEXAS 76102
(817) 820-0433

SEAL

FACADE PLAN - 12/12/2022

DUWEST
CREATING, ENHANCING & PROTECTING VALUE

ROCKWALL NORTH SHELL
SH205 & QUAIL RUN ROAD
ROCKWALL, TX

Issue Record:

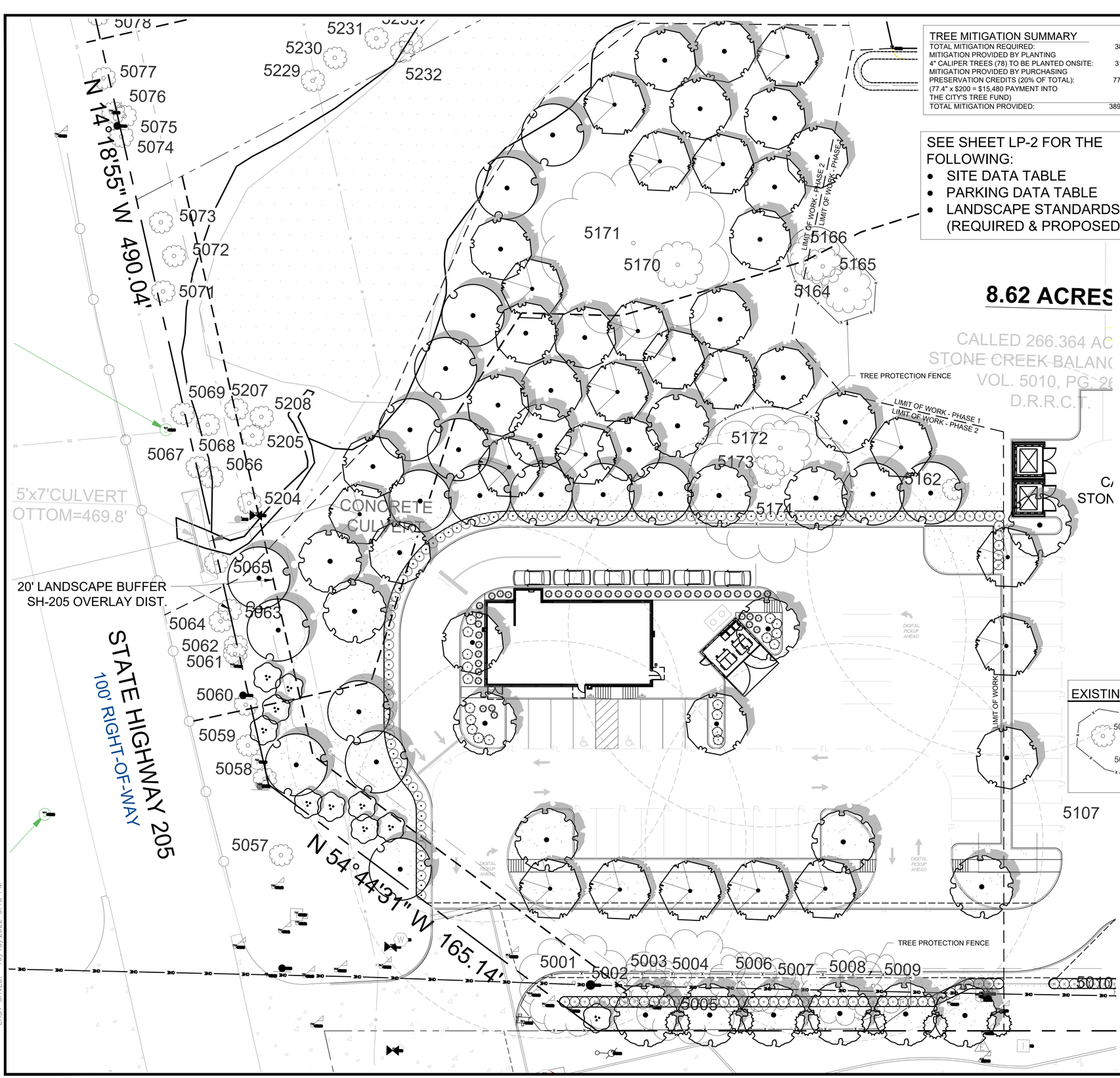
Revisions:

Drawn: T. GRANDORF
Checked: A. MORELAND

Project No.
ROGUE #22-0547

Contents:
FACADE PLAN

F000



TREE MITIGATION SUMMARY

TOTAL MITIGATION REQUIRED:	387"
MITIGATION PROVIDED BY PLANTING 4" CALIPER TREES (78) TO BE PLANTED ONSITE:	312"
MITIGATION PROVIDED BY PURCHASING PRESERVATION CREDITS (20% OF TOTAL): (77.4" x $200 = $15,480 PAYMENT INTO THE CITY'S TREE FUND)	77.4"
TOTAL MITIGATION PROVIDED:	389.4"

SEE SHEET LP-2 FOR THE FOLLOWING:
- SITE DATA TABLE
- PARKING DATA TABLE
- LANDSCAPE STANDARDS (REQUIRED & PROPOSED)

PLANT SCHEDULE

CANOPY TREES	QTY	BOTANICAL / COMMON NAME	CAL	SIZE
	20	ACER RUBRUM 'OCTOBER GLORY' OCTOBER GLORY MAPLE	4" CAL.	16'-18' HT
	19	QUERCUS POLYMORPHA MEXICAN WHITE OAK	4" CAL MIN	14`-16` HT
	19	QUERCUS VIRGINIANA LIVE OAK	4" CAL MIN	14`-16` HT
	20	ULMUS CRASSIFOLIA CEDAR ELM	4" CAL.	16`-18` HT

ACCENT TREES	QTY	BOTANICAL / COMMON NAME	CAL	SIZE
	10	CERCIS CANADENSIS EASTERN REDBUD 3-5 STEMS	2" CAL MIN	8` -10` HT
	6	ILEX VOMITORIA YAUPON HOLLY	2" CAL MIN	8` -10` HT

SHRUBS	QTY	BOTANICAL / COMMON NAME	CONT
	43	HESPERALOE PARVIFLORA RED YUCCA	3 GAL
	90	ILEX CORNUTA 'DWF. BURFORD' DWARF BURFORD HOLLY	5 GAL
	19	LANTANA X `NEW GOLD` NEW GOLD LANTANA	3 GAL
	57	MYRTUS COMMUNIS 'DON'S DWARF' DON'S DWARF WAX MYRTLE	5 GAL

GROUND COVER	QTY	BOTANICAL / COMMON NAME	CONT
	14,665 SF	CYNODON 'TIFWAY 419' TIFWAY 419 BERMUDA GRASS	SOD

NOTE: THE DEVELOPER SHALL ESTABLISH GRASS AND MAINTAIN THE SODDED AREA, INCLUDING WATERING, UNTIL A PERMANENT STAND OF GRASS IS OBTAINED AT WHICH TIME THE PROJECT WILL BE ACCEPTED BY THE CITY. A STAND OF GRASS SHALL CONSIST OF 75%-80% COVERAGE AND A MINIMUM O F 1" IN HEIGHT AS DETERMINED BY THE CITY.

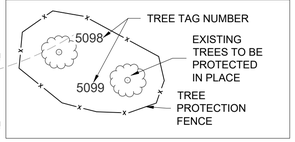
MULCHES

AFTER ALL PLANTING IS COMPLETE, CONTRACTOR SHALL INSTALL 3" THICK LAYER OF 1-1/2" SHREDDED WOOD MULCH, NATURAL (UNDYED), IN ALL PLANTING AREAS (EXCEPT FOR TURF AND SEEDED AREAS). CONTRACTOR SHALL SUBMIT SAMPLES OF ALL MULCHES TO LANDSCAPE ARCHITECT AND OWNER FOR APPROVAL PRIOR TO CONSTRUCTION. ABSOLUTELY NO EXPOSED GROUND SHALL BE LEFT SHOWING ANYWHERE ON THE PROJECT AFTER MULCH HAS BEEN INSTALLED (SUBJECT TO THE CONDITIONS AND REQUIREMENTS OF THE "GENERAL GRADING AND PLANTING NOTES" AND SPECIFICATIONS).

ROOT BARRIERS

THE CONTRACTOR SHALL INSTALL ROOT BARRIERS NEAR ALL NEWLY-PLANTED TREES THAT ARE LOCATED WITHIN FIVE (5) FEET OF PAVING OR CURBS. ROOT BARRIERS SHALL BE "CENTURY" OR "DEEP-ROOT" 24" DEEP PANELS (OR EQUAL). BARRIERS SHALL BE LOCATED IMMEDIATELY ADJACENT TO HARDSCAPE. INSTALL PANELS PER MANUFACTURER'S RECOMMENDATIONS. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR USE ROOT BARRIERS OF A TYPE THAT COMPLETELY ENCIRCLE THE ROOTBALL.

EXISTING TREE LEGEND



DUWEST ROCKWALL, TX

LEGAL DESCRIPTION AND OR ADDRESS:

STONE CREEK BALANCE LTD
ABSTRACT. NO 131
8.684 AC (378,275 SF)

OWNER:
DuWEST REALTY, LLC
4403 N.CENTRAL EXWAY SUITE #200
DALLAS, TX 75025
CONTACT: BOWEN HENDRIX
PH: 214.918.1804

APPLICANT:
CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
PH: 817.281.0572

CASE NUMBER
Z2022-003

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING AND ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____.

WITNESS OUR HANDS THIS ____ DAY OF _____.

PLANNING AND ZONING COMMISSION, CHAIRMAN

DIRECTOR OF PLANNING AND ZONING

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
1903 CENTRAL DR, SUITE #406
BEDFORD, TX 76021
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM

REGISTERED LANDSCAPE ARCHITECT
DARCY R. BRANDON
3423
STATE OF TEXAS

10/13/2022

DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

EVERGREEN DESIGN GROUP
(800) 680-6630
15455 Dallas Pkwy., Ste 600
Addison, TX 75001
www.EvergreenDesignGroup.com

LANDSCAPE PLANTING PLAN

DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	10/13/2022

SHEET
LP-1

File No. 2022-002

CASE # SP2022-042

PLOTTED BY: DARCY BRANDON
PLOT DATE: 10/13/2022 3:12 PM
LOCATION: C:\USERS\DARCY\DOCUMENTS\DBLA_PROJECTS\2022\EDG\CHIPOLTE DUWEST - ROCKWALL, TX\XREFS\2022-10-10 DUWEST ROCKWALL PHASE 2.DWG
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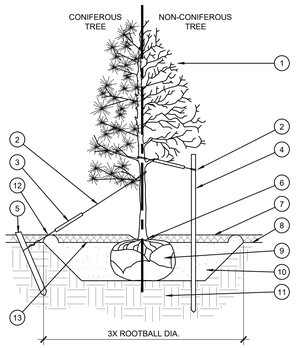
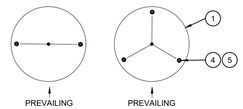


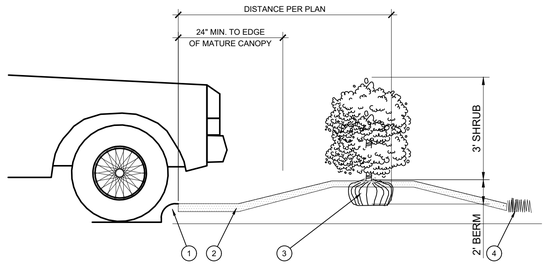
1. TREE CANOPY.
2. CINCH-TIES (24" BOX/2" CAL. TREES AND SMALLER) OR 12 GAUGE GALVANIZED WIRE WITH NYLON TREE STRAPS AT TREE AND STAKE (36" BOX/2.5" CAL. TREES AND LARGER). SECURE TIES OR STRAPS TO TRUNK JUST ABOVE LOWEST MAJOR BRANCHES.
3. 24" X 3/4" P.V.C. MARKERS OVER WIRES.
4. GREEN STEEL T-POSTS. EXTEND POSTS 12" MIN. INTO UNDISTURBED SOIL.
5. PRESSURE-TREATED WOOD DEADMAN, TWO PER TREE (MIN.). BURY OUTSIDE OF PLANTING PIT AND 18" MIN. INTO UNDISTURBED SOIL.
6. TRUNK FLARE.
7. MULCH, TYPE AND DEPTH PER PLANS. DO NOT PLACE MULCH WITHIN 6" OF TRUNK.
8. FINISH GRADE.
9. ROOT BALL.
10. BACKFILL. AMEND AND FERTILIZE ONLY AS RECOMMENDED IN SOIL FERTILITY ANALYSIS.
11. UNDISTURBED NATIVE SOIL.
12. 4" HIGH EARTHEN WATERING BASIN.
13. FINISH GRADE.

STAKING EXAMPLES (PLAN VIEW)



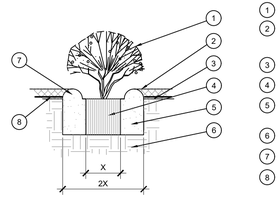
NOTES:
1. SCARIFY SIDES OF PLANTING PIT PRIOR TO SETTING TREE.
2. REMOVE EXCESS SOIL APPLIED ON TOP OF THE ROOTBALL THAT COVERS THE ROOT FLARE. THE PLANTING HOLE DEPTH SHALL BE SUCH THAT THE ROOTBALL RESTS ON UNDISTURBED SOIL, AND THE ROOT FLARE IS 2"-4" ABOVE FINISH GRADE.
3. FOR B&B TREES, CUT OFF BOTTOM 1/3 OF WIRE BASKET BEFORE PLACING TREE IN HOLE, CUT OFF AND REMOVE REMAINDER OF BASKET AFTER TREE IS SET IN HOLE. REMOVE ALL NYLON TIES, TWINE, ROPE, AND OTHER PACKING MATERIAL. REMOVE AS MUCH BURLAP FROM AROUND ROOTBALL AS IS PRACTICAL.
4. REMOVE ALL NURSERY STAKES AFTER PLANTING.
5. FOR TREES 36" BOX/2.5" CAL. AND LARGER, USE THREE STAKES OR DEADMEN (AS APPROPRIATE), SPACED EVENLY AROUND TREE.
6. STAKING SHALL BE TIGHT ENOUGH TO PREVENT TRUNK FROM BENDING, BUT LOOSE ENOUGH TO ALLOW SOME TRUNK MOVEMENT IN WIND.

A TREE PLANTING
SCALE: NOT TO SCALE



1. CURB.
2. MULCH LAYER.
3. PLANT.
4. TURF (WHERE SHOWN ON PLAN).

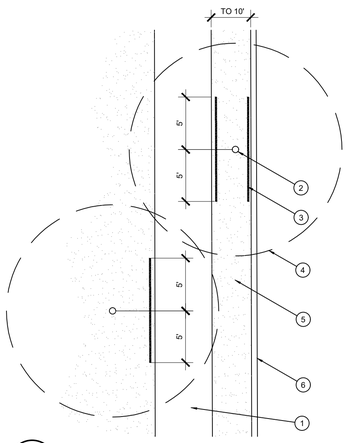
D PLANTING AT PARKING AREA
SCALE: NOT TO SCALE



1. SHRUB, PERENNIAL, OR ORNAMENTAL GRASS.
2. MULCH, TYPE AND DEPTH PER PLANS. PLACE NO MORE THAN 1" OF MULCH WITHIN 6" OF PLANT CENTER.
3. FINISH GRADE.
4. ROOT BALL.
5. BACKFILL. AMEND AND FERTILIZE ONLY AS RECOMMENDED IN SOIL FERTILITY ANALYSIS.
6. UNDISTURBED NATIVE SOIL.
7. 3" HIGH EARTHEN WATERING BASIN.
8. WEED FABRIC UNDER MULCH.

B SHRUB AND PERENNIAL PLANTING
SCALE: NTS

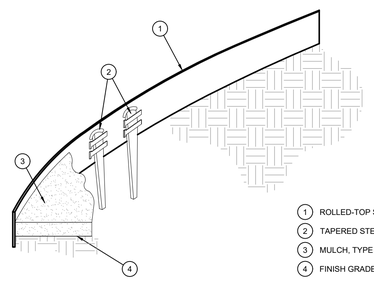
OPEN LANDSCAPE — PARKWAY OR ISLAND



1. TYPICAL WALKWAY OR PAVING
2. TREE TRUNK
3. LINEAR ROOT BARRIER MATERIAL. SEE PLANTING NOTES FOR TYPE AND MANUFACTURER. INSTALL PER MANUFACTURER'S SPECIFICATIONS.
4. TREE CANOPY
5. TYPICAL PLANTING AREA
6. TYPICAL CURB AND GUTTER

NOTES:
1) INSTALL ROOT BARRIERS NEAR ALL NEWLY-PLANTED TREES THAT ARE LOCATED WITHIN FIVE (5) FEET OF PAVING OR CURBS.
2) BARRIERS SHALL BE LOCATED IMMEDIATELY ADJACENT TO HARDSCAPE. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR USE ROOT BARRIERS OF A TYPE THAT COMPLETELY ENCIRCLE THE ROOTBALL.

F ROOT BARRIER - PLAN VIEW
SCALE: NOT TO SCALE



1. ROLLED-TOP STEEL EDGING PER PLANS.
2. TAPERED STEEL STAKES.
3. MULCH, TYPE AND DEPTH PER PLANS.
4. FINISH GRADE.

NOTES:
1) INSTALL EDGING SO THAT STAKES WILL BE ON INSIDE OF PLANTING BED.
2) BOTTOM OF EDGING SHALL BE BURIED A MINIMUM OF 1" BELOW FINISH GRADE.
3) TOP OF MULCH SHALL BE 1" LOWER THAN TOP OF EDGING.

D STEEL EDGING
SCALE: NOT TO SCALE

PARKING DATA TABLE

PARKING REQUIRED	
DRIVE-THRU RESTAURANT (2,325 SF) 1 SPACE / 100 SF	24 SPACES
STANDARD PARKING	33 SPACES
ADA PARKING	2 SPACES
PARKING PROVIDED	
TOTAL PARKING	33 SPACES
ADA PARKING	2 SPACES

SITE DATA TABLE

	PHASE 2 (CHIPOTLE)	PHASE 1 (EXISTING)	TOTAL
SITE AREA	8.684 AC / 378,275 SF	8.684 AC / 378,275 SF	8.684 AC / 378,275 SF
ZONING	PD-70 (Planned Development)	PD-70 (Planned Development) GR (General Retail Dist.)	PD-70
PROPOSED USE	DRIVE-THRU RESTAURANT	RETAIL/DRIVE-THRU RESTAURANT	RETAIL/DRIVE-THRU RESTAURANT
BUILDING SIZE	2,325 SF	BLDG. B - 10,000 SF BLDG. C - 10,000 SF	20,325 SF
PATIO AREA	332 SF	2,777 SF	3,109 SF
LOT COVERAGE	0.06%	5.2%	5.26%
FLOOR AREA RATIO	0.00:1	0.05:1	0.06:1
BUILDING HEIGHT	1-STORY	1-STORY	1-STORY
IMPERVIOUS AREA	29,064 SF (0.8%)	116,406 SF (30.8%)	145,138 SF (38.3%)
OPEN SPACE	8.62 AC (92%)	6.04 AC (69.2%)	5.4 AC (61.7%)

GENERAL GRADING AND PLANTING NOTES

1. BY SUBMITTING A PROPOSAL FOR THE LANDSCAPE PLANTING SCOPE OF WORK, THE CONTRACTOR CONFIRMS THAT HE HAS READ, AND WILL COMPLY WITH, THE ASSOCIATED NOTES, SPECIFICATIONS, AND DETAILS WITH THIS PROJECT.
2. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL EXISTING VEGETATION (EXCEPT WHERE NOTED TO REMAIN).
3. IN THE CONTEXT OF THESE PLANS, NOTES, AND SPECIFICATIONS, "FINISH GRADE" REFERS TO THE FINAL ELEVATION OF THE SOIL SURFACE (NOT TOP OF MULCH) AS INDICATED ON THE GRADING PLANS.
   a. BEFORE STARTING WORK, THE LANDSCAPE CONTRACTOR SHALL VERIFY THAT THE ROUGH GRADES OF ALL LANDSCAPE AREAS ARE WITHIN +/-0.1' OF FINISH GRADE. SEE SPECIFICATIONS FOR MORE DETAILED INSTRUCTION ON TURF AREA AND PLANTING BED PREPARATION.
   b. CONSTRUCT AND MAINTAIN FINISH GRADES AS SHOWN ON GRADING PLANS, AND CONSTRUCT AND MAINTAIN SLOPES AS RECOMMENDED BY THE GEOTECHNICAL REPORT. ALL LANDSCAPE AREAS SHALL HAVE POSITIVE DRAINAGE AWAY FROM STRUCTURES AT THE MINIMUM SLOPE SPECIFIED IN THE REPORT AND ON THE GRADING PLANS, AND AREAS OF POTENTIAL PONDING SHALL BE REGRADED TO BLEND IN WITH THE SURROUNDING GRADES AND ELIMINATE PONDING POTENTIAL.
   c. THE LANDSCAPE CONTRACTOR SHALL DETERMINE WHETHER OR NOT THE EXPORT OF ANY SOIL WILL BE NEEDED, TAKING INTO ACCOUNT THE ROUGH GRADE PROVIDED, THE AMOUNT OF SOIL AMENDMENTS TO BE ADDED (**BASED ON A SOIL TEST**, PER SPECIFICATIONS), AND THE FINISH GRADES TO BE ESTABLISHED.
   d. ENSURE THAT THE FINISH GRADE IN SHRUB AREAS IMMEDIATELY ADJACENT TO WALKS AND OTHER WALKING SURFACES, AFTER INSTALLING SOIL AMENDMENTS, IS 3" BELOW THE ADJACENT FINISH SURFACE, IN ORDER TO ALLOW FOR PROPER MULCH DEPTH. TAPER THE SOIL SURFACE TO MEET FINISH GRADE, AS SPECIFIED ON THE GRADING PLANS, AT APPROXIMATELY 18" AWAY FROM THE WALKS.
   e. ENSURE THAT THE FINISH GRADE IN TURF AREAS IMMEDIATELY ADJACENT TO WALKS AND OTHER WALKING SURFACES, AFTER INSTALLING SOIL AMENDMENTS, IS 1" BELOW THE FINISH SURFACE OF THE WALKS. TAPER THE SOIL SURFACE TO MEET FINISH GRADE, AS SPECIFIED ON THE GRADING PLANS, AT APPROXIMATELY 18" AWAY FROM THE WALKS.
   f. SHOULD ANY CONFLICTS AND/OR DISCREPANCIES ARISE BETWEEN THE GRADING PLANS, GEOTECHNICAL REPORT, THESE NOTES AND PLANS, AND ACTUAL CONDITIONS, THE CONTRACTOR SHALL IMMEDIATELY BRING SUCH ITEMS TO THE ATTENTION OF THE LANDSCAPE ARCHITECT, GENERAL CONTRACTOR, AND OWNER.
4. ALL PLANT LOCATIONS ARE DIAGRAMMATIC. ACTUAL LOCATIONS SHALL BE VERIFIED WITH THE LANDSCAPE ARCHITECT OR DESIGNER PRIOR TO PLANTING. THE LANDSCAPE CONTRACTOR SHALL ENSURE THAT ALL REQUIREMENTS OF THE PERMITTING AUTHORITY ARE MET (I.E., MINIMUM PLANT QUANTITIES, PLANTING METHODS, TREE PROTECTION METHODS, ETC.).
   a. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR DETERMINING PLANT QUANTITIES; PLANT QUANTITIES SHOWN ON LEGENDS AND CALLOUTS ARE FOR GENERAL INFORMATION ONLY. IN THE EVENT OF A DISCREPANCY BETWEEN THE PLAN AND THE PLANT LEGEND, THE PLANT QUANTITY AS SHOWN ON THE PLAN (FOR INDIVIDUAL SYMBOLS) OR CALLOUT (FOR GROUNDCOVER PATTERNS) SHALL TAKE PRECEDENCE.
   b. **NO SUBSTITUTIONS OF PLANT MATERIALS SHALL BE ALLOWED WITHOUT THE WRITTEN PERMISSION OF THE LANDSCAPE ARCHITECT.** IF SOME OF THE PLANTS ARE NOT AVAILABLE, THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT IN WRITING (VIA PROPER CHANNELS).
   c. THE CONTRACTOR SHALL, AT A MINIMUM, PROVIDE REPRESENTATIVE PHOTOS OF ALL PLANTS PROPOSED FOR THE PROJECT. THE CONTRACTOR SHALL ALLOW THE LANDSCAPE ARCHITECT AND THE OWNER/OWNER'S REPRESENTATIVE TO INSPECT, AND APPROVE OR REJECT, ALL PLANTS DELIVERED TO THE JOBSITE.
   REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS FOR SUBMITTALS.
5. THE CONTRACTOR SHALL MAINTAIN THE LANDSCAPE IN A HEALTHY CONDITION FOR 90 DAYS AFTER ACCEPTANCE BY THE OWNER. REFER TO SPECIFICATIONS FOR CONDITIONS OF ACCEPTANCE FOR THE START OF THE MAINTENANCE PERIOD, AND FOR FINAL ACCEPTANCE AT THE END OF THE MAINTENANCE PERIOD.
6. SEE SPECIFICATIONS AND DETAILS FOR FURTHER REQUIREMENTS.

IRRIGATION CONCEPT

1. AN AUTOMATIC IRRIGATION SYSTEM SHALL BE INSTALLED AND OPERATIONAL BY THE TIME OF FINAL INSPECTION. THE ENTIRE IRRIGATION SYSTEM SHALL BE INSTALLED BY A LICENSED AND QUALIFIED IRRIGATION CONTRACTOR.
2. THE IRRIGATION SYSTEM WILL OPERATE ON POTABLE WATER, AND THE SYSTEM WILL HAVE APPROPRIATE BACKFLOW PREVENTION DEVICES INSTALLED TO PREVENT CONTAMINATION OF THE POTABLE SOURCE.
3. ALL NON-TURF PLANTED AREAS SHALL BE DRIP IRRIGATED. SODDED AND SEEDED AREAS SHALL BE IRRIGATED WITH SPRAY OR ROTOR HEADS AT 100% HEAD-TO-HEAD COVERAGE.
4. ALL PLANTS SHARING SIMILAR HYDROZONE CHARACTERISTICS SHALL BE PLACED ON A VALVE DEDICATED TO PROVIDE THE NECESSARY WATER REQUIREMENTS SPECIFIC TO THAT HYDROZONE.
5. THE IRRIGATION SYSTEM SHALL BE DESIGNED AND INSTALLED, TO THE MAXIMUM EXTENT POSSIBLE, TO CONSERVE WATER BY USING THE FOLLOWING DEVICES AND SYSTEMS: MATCHED PRECIPITATION RATE TECHNOLOGY ON ROTOR AND SPRAY HEADS (WHEREVER POSSIBLE), RAIN SENSORS, AND MULTI-PROGRAM COMPUTERIZED IRRIGATION CONTROLLERS FEATURING SENSORY INPUT CAPABILITIES.
6. ALL IRRIGATION SHALL MEET THE REQUIREMENTS OF THE CITY OF ROCKWALL'S UDC (SUBSECTION 05.04, OF ARTICLE 08)

LANDSCAPE STANDARDS

05.01 LANDSCAPE BUFFERS - NON-RESIDENTIAL	
REQ. ABUTTING A PUBLIC RIGHT-OF-WAY:	20' WIDE LANDSCAPE BUFFER W/ GROUND COVER, BERM, AND SHRUBBERY 30" HIGH + 1 CANOPY TREE & 1 ACCENT TREE PER 50 LIN. FEET OF FRONTAGE
ST. HWY 205 OVERLAY DISTRICT: ±246' STREET FRONTAGE	20' WIDE BUFFER REQ. W/ 2 CANOPY + 4 ACCENT TREES PER 100 LIN. FT. OF FRONTAGE; GROUND COVER, BUILT-UP BERM AND SHRUBBERY ALONG ENTIRE FRONTAGE
REQUIRED PLANTING:	5 CANOPY TREES, 10 ACCENT TREES, BERM W/ SHRUBS
PROVIDED 20' BUFFER:	1 EXIST. CANOPY TREES + 4 NEW CANOPY TREES; 10 ACCENT TREES W/ BERM AND SHRUBS
05.02 LANDSCAPE SCREENING	
REQ. HEADLIGHT SCREENING	HEAD-IN PARKING ADJ. TO STREET SHALL INCORP. MIN. 2' BERM W/ MATURE EVERGREEN SHRUBS ALONG ENTIRE PARKING AREAS
SCREENING PROVIDED:	N/A
SCREENING FROM RESIDENTIAL:	N/A
05.03 LANDSCAPE REQUIREMENTS - COMMERCIAL (C) DISTRICT	
TOTAL SITE AREA (CHIPOLTE ONLY):	±64,104 SF
LANDSCAPE AREA REQUIRED TOTAL SITE:	12,821 SF (20%)
LANDSCAPE PROVIDED, TOTAL SITE:	± 27,515 (43%)
LOCATION OF LANDSCAPING:	MIN. 50% OF REQ. LANDSCAPING SHALL BE LOCATED IN THE FRONT OF & ALONG THE SIDE OF BUILDINGS W/ STREET FRONTAGE. 12,821 x 50% = 6,410.5 SF
LANDSCAPE AREAS IN FRONT & SIDES OF BUILDINGS:	14,825 SF (115.6%)
MIN. SIZE OF AREAS	ALL REQ. LANDSCAPING SHALL BE NO LESS THAN 5' WIDE AND A MIN. OF 25 SF IN AREA
DETENTION BASINS	NONE PROPOSED
PARKING LOT LANDSCAPING	MIN. 5% OR 200 SF OF LANDSCAPING, WHICHEVER IS GREATER, IN THE INTERIOR OF PARKING LOT AREA.
PROPOSED PARKING AREA:	±24,630 SF
REQ. PARKING AREA LANDSCAPING:	24,630 x 5% =1,232
PROPOSED PARKING LOT LANDSCAPING:	±2,217 SF (9%)
	REQ. PARKING SPACES MUST BE WITHIN 80' OF A CANOPY TREE TRUNK

DUWEST ROCKWALL

LEGAL DESCRIPTION AND OR ADDRESS:

STONE CREEK BALANCE LTD
ABSTRACT. NO 131
8.684 AC (378,275 SF)

OWNER:
DuWEST REALTY, LLC
4403 N.CENTRAL EXWAY SUITE #200
DALLAS, TX 75025
CONTACT: BOWEN HENDRIX
PH: 214.918.1804

APPLICANT:
CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
PH: 817.281.0572

CASE NUMBER
Z2022-003

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING AND ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____.

WITNESS OUR HANDS THIS ____ DAY OF _____.

_____
PLANNING AND ZONING COMMISSION, CHAIRMAN

_____
DIRECTOR OF PLANNING AND ZONING

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
1903 CENTRAL DR, SUITE #406
BEDFORD, TX 76021
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM

REGISTERED LANDSCAPE ARCHITECT — DARCY R. BRANDON — 3423 — STATE OF TEXAS

10/13/2022

DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

EVERGREEN DESIGN GROUP
(800) 680-6630
15455 Dallas Pkwy., Ste 600
Addison, TX 75001
www.EvergreenDesignGroup.com

LANDSCAPE PLANTING DETAILS & NOTES

DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	10/13/2022

SHEET
LP-2

File No. 2022-002

CASE # SP2022-042

PLOTTED BY: DARCY BRANDON
PLOT DATE: 10/13/2022 3:12 PM
LOCATION: C:\USERS\DARCY\DOCUMENTS\DBLA_PROJECTS\2022\EDG\CHIPOLTE DUWEST - ROCKWALL, TX\XREFS\2022-10-10 DUWEST ROCKWALL PHASE 2.DWG
LAST SAVED: 10/13/2022 3:10 PM

PLANTING SPECIFICATIONS

GENERAL

A. QUALIFICATIONS OF LANDSCAPE CONTRACTOR
   1. ALL LANDSCAPE WORK SHOWN ON THESE PLANS SHALL BE PERFORMED BY A SINGLE FIRM SPECIALIZING IN LANDSCAPE PLANTING.
   2. A LIST OF SUCCESSFULLY COMPLETED PROJECTS OF THIS TYPE, SIZE AND NATURE MAY BE REQUESTED BY THE OWNER FOR FURTHER QUALIFICATION MEASURES.
   3. THE LANDSCAPE CONTRACTOR SHALL HOLD A VALID NURSERY AND FLORAL CERTIFICATE ISSUED BY THE TEXAS DEPARTMENT OF AGRICULTURE, AS WELL AS OPERATE UNDER A COMMERCIAL PESTICIDE APPLICATOR LICENSE ISSUED BY EITHER THE TEXAS DEPARTMENT OF AGRICULTURE OR THE TEXAS STRUCTURAL PEST CONTROL BOARD.

B. SCOPE OF WORK
   1. WORK COVERED BY THESE SECTIONS INCLUDES THE FURNISHING AND PAYMENT OF ALL MATERIALS, LABOR, SERVICES, EQUIPMENT, LICENSES, TAXES AND ANY OTHER ITEMS THAT ARE NECESSARY FOR THE EXECUTION, INSTALLATION AND COMPLETION OF ALL WORK, SPECIFIED HEREIN AND / OR SHOWN ON THE LANDSCAPE PLANS, NOTES, AND DETAILS.
   2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS REQUIRED BY AUTHORITIES HAVING JURISDICTION OVER SUCH WORK, INCLUDING ALL INSPECTIONS AND PERMITS REQUIRED BY FEDERAL, STATE AND LOCAL AUTHORITIES IN SUPPLY, TRANSPORTATION AND INSTALLATION OF MATERIALS.
   3. THE LANDSCAPE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITY LINES (WATER, SEWER, ELECTRICAL, TELEPHONE, GAS, CABLE, TELEVISION, ETC.) PRIOR TO THE START OF ANY WORK.

PRODUCTS

A. ALL MANUFACTURED PRODUCTS SHALL BE NEW.
B. CONTAINER AND BALLED-AND-BURLAPPED PLANTS:
   1. FURNISH NURSERY-GROWN PLANTS COMPLYING WITH ANSI Z60.1-2014. PROVIDE WELL-SHAPED, FULLY BRANCHED, HEALTHY, VIGOROUS STOCK FREE OF DISEASE, INSECTS, EGGS, LARVAE, AND DEFECTS SUCH AS KNOTS, SUN SCALD, INJURIES, ABRASIONS, AND DISFIGUREMENT. ALL PLANTS WITHIN A SPECIES SHALL HAVE SIMILAR SIZE, AND SHALL BE OF A FORM TYPICAL FOR THE SPECIES. ALL TREES SHALL BE OBTAINED FROM SOURCES WITHIN 200 MILES OF THE PROJECT SITE, AND WITH SIMILAR CLIMACTIC CONDITIONS.
   2. ROOT SYSTEMS SHALL BE HEALTHY, DENSELY BRANCHED ROOT SYSTEMS, NON-POT-BOUND, FREE FROM ENCIRCLING AND/OR GIRDLING ROOTS, AND FREE FROM ANY OTHER ROOT DEFECTS (SUCH AS J-SHAPED ROOTS).
   3. TREES MAY BE PLANTED FROM CONTAINERS OR BALLED-AND-BURLAPPED (B&B), UNLESS SPECIFIED ON THE PLANTING LEGEND. BARE-ROOT TREES ARE NOT ACCEPTABLE.
   4. ANY PLANT DEEMED UNACCEPTABLE BY THE LANDSCAPE ARCHITECT OR OWNER SHALL BE IMMEDIATELY REMOVED FROM THE SITE AND SHALL BE REPLACED WITH AN ACCEPTBLE PLANT OF LIKE TYPE AND SIZE AT THE CONTRACTOR'S OWN EXPENSE. ANY PLANTS APPEARING TO BE UNHEALTHY, EVEN IF DETERMINED TO STILL BE ALIVE, SHALL NOT BE ACCEPTED. THE LANDSCAPE ARCHITECT AND OWNER SHALL BE THE SOLE JUDGES AS TO THE ACCEPTABILITY OF PLANT MATERIAL.
   5. ALL TREES SHALL BE STANDARD IN FORM, UNLESS OTHERWISE SPECIFIED. TREES WITH CENTRAL LEADERS WILL NOT BE ACCEPTED IF LEADER IS DAMAGED OR REMOVED. PRUNE ALL DAMAGED TWIGS AFTER PLANTING.
   6. CALIPER MEASUREMENTS FOR STANDARD (SINGLE TRUNK) TREES SHALL BE AS FOLLOWS: SIX INCHES ABOVE THE ROOT FLARE FOR TREES UP TO AND INCLUDING FOUR INCHES IN CALIPER, AND TWELVE INCHES ABOVE THE ROOT FLARE FOR TREES EXCEEDING FOUR INCHES IN CALIPER.
   7. MULTI-TRUNK TREES SHALL BE MEASURED BY THEIR OVERALL HEIGHT, MEASURED FROM THE TOP OF THE ROOT BALL. WHERE CALIPER MEASUREMENTS ARE USED, THE CALIPER SHALL BE CALCULATED AS ONE-HALF OF THE SUM OF THE CALIPER OF THE THREE LARGEST TRUNKS.
   8. ANY TREE OR SHRUB SHOWN TO HAVE EXCESS SOIL PLACED ON TOP OF THE ROOT BALL, SO THAT THE ROOT FLARE HAS BEEN COMPLETELY COVERED, SHALL BE REJECTED.
C. SOD: PROVIDE WELL-ROOTED SOD OF THE VARIETY NOTED ON THE PLANS. SOD SHALL BE CUT FROM HEALTHY, MATURE TURF WITH SOIL THICKNESS OF 3/4" TO 1". EACH PALLET OF SOD SHALL BE ACCOMPANIED BY A CERTIFICATE FROM SUPPLIER STATING THE COMPOSITION OF THE SOD.
D. TOPSOIL: SANDY TO CLAY LOAM TOPSOIL, FREE OF STONES LARGER THAN ½ INCH, FOREIGN MATTER, PLANTS, ROOTS, AND SEEDS.
E. COMPOST: WELL-COMPOSTED, STABLE, AND WEED-FREE ORGANIC MATTER, pH RANGE OF 5.5 TO 8; MOISTURE CONTENT 35 TO 55 PERCENT BY WEIGHT; 100 PERCENT PASSING THROUGH 3/4-INCH SIEVE; SOLUBLE SALT CONTENT OF 5 TO 10 DECISIEMENS/M; NOT EXCEEDING 0.5 PERCENT INERT CONTAMINANTS AND FREE OF SUBSTANCES TOXIC TO PLANTINGS. NO MANURE OR ANIMAL-BASED PRODUCTS SHALL BE USED.
F. FERTILIZER: GRANULAR FERTILIZER CONSISTING OF NITROGEN, PHOSPHORUS, POTASSIUM, AND OTHER NUTRIENTS IN PROPORTIONS, AMOUNTS, AND RELEASE RATES RECOMMENDED IN A SOIL REPORT FROM A QUALIFIED SOIL-TESTING AGENCY (SEE BELOW).
G. MULCH: SIZE AND TYPE AS INDICATED ON PLANS, FREE FROM DELETERIOUS MATERIALS AND SUITABLE AS A TOP DRESSING OF TREES AND SHRUBS.
H. TREE STAKING AND GUYING
   1. STAKES: 6' LONG GREEN METAL T-POSTS.
   2. GUY AND TIE WIRE: ASTM A 641, CLASS 1, GALVANIZED-STEEL WIRE, 2-STRAND, TWISTED, 0.106 INCH DIAMETER.
   3. STRAP CHAFING GUARD: REINFORCED NYLON OR CANVAS AT LEAST 1-1/2 INCH WIDE, WITH GROMMETS TO PROTECT TREE TRUNKS FROM DAMAGE.
I. STEEL EDGING: PROFESSIONAL STEEL EDGING, 14 GAUGE THICK X 4 INCHES WIDE, FACTORY PAINTED DARK GREEN. ACCEPTABLE MANUFACTURERS INCLUDE COL-MET OR APPROVED EQUAL.
J. PRE-EMERGENT HERBICIDES: ANY GRANULAR, NON-STAINING PRE-EMERGENT HERBICIDE THAT IS LABELED FOR THE SPECIFIC ORNAMENTALS OR TURF ON WHICH IT WILL BE UTILIZED. PRE-EMERGENT HERBICIDES SHALL BE APPLIED PER THE MANUFACTURER'S LABELED RATES.

METHODS

A. SOIL PREPARATION
   1. BEFORE STARTING WORK, THE LANDSCAPE CONTRACTOR SHALL VERIFY THAT THE GRADE OF ALL LANDSCAPE AREAS ARE WITHIN +/-0.1" OF FINISH GRADE. THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY SHOULD ANY DISCREPANCIES EXIST.
   2. SOIL TESTING:
      a. AFTER FINISH GRADES HAVE BEEN ESTABLISHED, CONTRACTOR SHALL HAVE SOIL SAMPLES FROM THE PROJECT'S LANDSCAPE AREAS TESTED BY AN ESTABLISHED SOIL TESTING LABORATORY. EACH SAMPLE SUBMITTED TO THE LAB SHALL CONTAIN NO LESS THAN ONE QUART OF SOIL, TAKEN FROM BETWEEN THE SOIL SURFACE AND 6" DEPTH. IF NO SAMPLE LOCATIONS ARE INDICATED ON THE PLANS, THE CONTRACTOR SHALL TAKE A MINIMUM OF THREE SAMPLES FROM VARIOUS REPRESENTATIVE LOCATIONS FOR TESTING.
      b. THE CONTRACTOR SHALL HAVE THE SOIL TESTING LABORATORY PROVIDE RESULTS FOR THE FOLLOWING: SOIL TEXTURAL CLASS, GENERAL SOIL FERTILITY, pH, ORGANIC MATTER CONTENT, SALT (CEC), LIME, SODIUM ADSORPTION RATIO (SAR) AND BORON CONTENT.
      c. THE CONTRACTOR SHALL ALSO SUBMIT THE PROJECT'S PLANT LIST TO THE LABORATORY ALONG WITH THE SOIL SAMPLES.
      d. THE SOIL REPORT PRODUCED BY THE LABORATORY SHALL CONTAIN RECOMMENDATIONS FOR THE FOLLOWING (AS APPROPRIATE): SEPARATE SOIL PREPARATION AND BACKFILL MIX RECOMMENDATIONS FOR GENERAL ORNAMENTAL PLANTS, XERIC PLANTS, TURF, AND NATIVE SEED, AS WELL AS PRE-PLANT FERTILIZER APPLICATIONS AND RECOMMENDATIONS FOR ANY OTHER SOIL RELATED ISSUES. THE REPORT SHALL ALSO PROVIDE A FERTILIZER PROGRAM FOR THE ESTABLISHMENT PERIOD AND FOR LONG-TERM MAINTENANCE.
   3. THE CONTRACTOR SHALL INSTALL SOIL AMENDMENTS AND FERTILIZERS PER THE SOILS REPORT RECOMMENDATIONS. ANY CHANGE IN COST DUE TO THE SOIL REPORT RECOMMENDATIONS, EITHER INCREASE OR DECREASE, SHALL BE SUBMITTED TO THE OWNER WITH THE REPORT.
   4. FOR BIDDING PURPOSES ONLY, THE SOIL PREPARATION SHALL CONSIST OF THE FOLLOWING:
      a. TURF: INCORPORATE THE FOLLOWING AMENDMENTS INTO THE TOP 8" OF SOIL BY MEANS OF ROTOTILLING AFTER CROSS-RIPPING:
         i. NITROGEN STABILIZED ORGANIC AMENDMENT - 4 CU. YDS. PER 1,000 S.F.
         ii. PREPLANT TURF FERTILIZER (10-20-10 OR SIMILAR, SLOW RELEASE, ORGANIC) - 15 LBS PER 1,000 S.F.
         iii. "CLAY BUSTER" OR EQUAL - USE MANUFACTURER'S RECOMMENDED RATE
      b. TREES, SHRUBS, AND PERENNIALS: INCORPORATE THE FOLLOWING AMENDMENTS INTO THE TOP 8" OF SOIL BY MEANS OF ROTOTILLING AFTER CROSS-RIPPING:
         i. NITROGEN STABILIZED ORGANIC AMENDMENT - 4 CU. YDS. PER 1,000 S.F.
         ii. 12-12-12 FERTILIZER (OR SIMILAR, ORGANIC, SLOW RELEASE) - 10 LBS. PER CU. YD.
         iii. "CLAY BUSTER" OR EQUAL - USE MANUFACTURER'S RECOMMENDED RATE
         iv. IRON SULPHATE - 2 LBS. PER CU. YD.
   5. IN THE CONTEXT OF THESE PLANS, NOTES, AND SPECIFICATIONS, "FINISH GRADE" REFERS TO THE FINAL ELEVATION OF THE SOIL SURFACE (NOT TOP OF MULCH) AS INDICATED ON THE GRADING PLANS.
      a. BEFORE STARTING WORK, THE LANDSCAPE CONTRACTOR SHALL VERIFY THAT THE ROUGH GRADES OF ALL LANDSCAPE AREAS ARE WITHIN +/-0.1' OF FINISH GRADE. SEE SPECIFICATIONS FOR MORE DETAILED INSTRUCTION ON TURF AREA AND PLANTING BED PREPARATION.
      b. CONSTRUCT AND MAINTAIN FINISH GRADES AS SHOWN ON GRADING PLANS, AND CONSTRUCT AND MAINTAIN SLOPES AS RECOMMENDED BY THE GEOTECHNICAL REPORT. ALL LANDSCAPE AREAS SHALL HAVE POSITIVE DRAINAGE AWAY FROM STRUCTURES AT THE MINIMUM SLOPE SPECIFIED IN THE REPORT AND ON THE GRADING PLANS, AND AREAS OF POTENTIAL PONDING SHALL BE REGRADED TO BLEND IN WITH THE SURROUNDING GRADES AND ELIMINATE PONDING POTENTIAL.
      c. THE LANDSCAPE CONTRACTOR SHALL DETERMINE WHETHER OR NOT THE EXPORT OF ANY SOIL WILL BE NEEDED, TAKING INTO ACCOUNT THE ROUGH GRADE PROVIDED, THE AMOUNT OF SOIL AMENDMENTS TO BE ADDED (**BASED ON A SOIL TEST**, PER SPECIFICATIONS), AND THE FINISH GRADES TO BE ESTABLISHED.
      d. ENSURE THAT THE FINISH GRADE IN SHRUB AREAS IMMEDIATELY ADJACENT TO WALKS AND OTHER WALKING SURFACES, AFTER INSTALLING SOIL AMENDMENTS, IS 3" BELOW THE ADJACENT FINISH SURFACE, IN ORDER TO ALLOW FOR PROPER MULCH DEPTH. TAPER THE SOIL SURFACE TO MEET FINISH GRADE, AS SPECIFIED ON THE GRADING PLANS, AT APPROXIMATELY 18" AWAY FROM THE WALKS.
      e. ENSURE THAT THE FINISH GRADE IN TURF AREAS IMMEDIATELY ADJACENT TO WALKS AND OTHER WALKING SURFACES, AFTER INSTALLING SOIL AMENDMENTS, IS 1" BELOW THE FINISH SURFACE OF THE WALKS. TAPER THE SOIL SURFACE TO MEET FINISH GRADE, AS SPECIFIED ON THE GRADING PLANS, AT APPROXIMATELY 18" AWAY FROM THE WALKS.
      f. SHOULD ANY CONFLICTS AND/OR DISCREPANCIES ARISE BETWEEN THE GRADING PLANS, GEOTECHNICAL REPORT, THESE NOTES AND PLANS, AND ACTUAL CONDITIONS, THE CONTRACTOR SHALL IMMEDIATELY BRING SUCH ITEMS TO THE ATTENTION OF THE LANDSCAPE ARCHITECT, GENERAL CONTRACTOR, AND OWNER.
   6. ONCE SOIL PREPARATION IS COMPLETE, THE LANDSCAPE CONTRACTOR SHALL ENSURE THAT THERE ARE NO DEBRIS, TRASH, OR STONES LARGER THAN 1" REMAINING IN THE TOP 6" OF SOIL.

B. SUBMITTALS
   1. THE CONTRACTOR SHALL PROVIDE SUBMITTALS AND SAMPLES, IF REQUIRED, TO THE LANDSCAPE ARCHITECT, AND RECEIVE APPROVAL IN WRITING FOR SUCH SUBMITTALS BEFORE WORK COMMENCES.
   2. SUBMITTALS SHALL INCLUDE PHOTOS OF PLANTS WITH A RULER OR MEASURING STICK FOR SCALE, PHOTOS OR SAMPLES OF ANY REQUIRED MULCHES, AND SOIL TEST RESULTS AND PREPARATION RECOMMENDATIONS FROM THE TESTING LAB (INCLUDING COMPOST AND FERTILIZER RATES AND TYPES, AND OTHER AMENDMENTS FOR TREE/SHRUB, TURF, AND SEED AREAS AS MAY BE APPROPRIATE).
   3. SUBMITTALS SHALL ALSO INCLUDE MANUFACTURER CUT SHEETS FOR PLANTING ACCESSORIES SUCH AS TREE STAKES AND TIES, EDGING, AND LANDSCAPE FABRICS (IF ANY).
   4. WHERE MULTIPLE ITEMS ARE SHOWN ON A PAGE, THE CONTRACTOR SHALL CLEARLY INDICATE THE ITEM BEING CONSIDERED.
C. GENERAL PLANTING
   1. REMOVE ALL NURSERY TAGS AND STAKES FROM PLANTS.
   2. EXCEPT IN AREAS TO BE PLANTED WITH ORNAMENTAL GRASSES, APPLY PRE-EMERGENT HERBICIDES AT THE MANUFACTURER'S RECOMMENDED RATE.
   3. TRENCHING NEAR EXISTING TREES:
      a. CONTRACTOR SHALL NOT DISTURB ROOTS 1-1/2" AND LARGER IN DIAMETER WITHIN THE CRITICAL ROOT ZONE (CRZ) OF EXISTING TREES, AND SHALL EXERCISE ALL POSSIBLE CARE AND PRECAUTIONS TO AVOID INJURY TO TREE ROOTS, TRUNKS, AND BRANCHES. THE CRZ IS DEFINED AS A CIRCULAR AREA EXTENDING OUTWARD FROM THE TREE TRUNK, WITH A RADIUS EQUAL TO 1' FOR EVERY 1" OF TRUNK DIAMETER-AT-BREAST-HEIGHT (4.5' ABOVE THE AVERAGE GRADE AT THE TRUNK).
      b. ALL EXCAVATION WITHIN THE CRZ SHALL BE PERFORMED USING HAND TOOLS. NO MACHINE EXCAVATION OR TRENCHING OF ANY KIND SHALL BE ALLOWED WITHIN THE CRZ.
      c. ALTER ALIGNMENT OF PIPE TO AVOID TREE ROOTS 1-1/2" AND LARGER IN DIAMETER. WHERE TREE ROOTS 1-1/2" AND LARGER IN DIAMETER ARE ENCOUNTERED IN THE FIELD, TUNNEL UNDER SUCH ROOTS. WRAP EXPOSED ROOTS WITH SEVERAL LAYERS OF BURLAP AND KEEP MOIST. CLOSE ALL TRENCHES WITHIN THE CANOPY DRIP LINES WITHIN 24 HOURS.
      d. ALL SEVERED ROOTS SHALL BE HAND PRUNED WITH SHARP TOOLS AND ALLOWED TO AIR-DRY. DO NOT USE ANY SORT OF SEALERS OR WOUND PAINTS.
D. TREE PLANTING
   1. TREE PLANTING HOLES SHALL BE EXCAVATED TO MINIMUM WIDTH OF TWO TIMES THE WIDTH OF THE ROOTBALL, AND TO A DEPTH EQUAL TO THE DEPTH OF THE ROOTBALL LESS TWO TO FOUR INCHES.
   2. SCARIFY THE SIDES AND BOTTOM OF THE PLANTING HOLE PRIOR TO THE PLACEMENT OF THE TREE. REMOVE ANY GLAZING THAT MAY HAVE BEEN CAUSED DURING THE EXCAVATION OF THE HOLE.
   3. FOR CONTAINER AND BOX TREES, TO REMOVE ANY POTENTIALLY GIRDLING ROOTS AND OTHER ROOT DEFECTS, THE CONTRACTOR SHALL SHAVE A 1" LAYER OFF OF THE SIDES AND BOTTOM OF THE ROOTBALL OF ALL TREES JUST BEFORE PLACING INTO THE PLANTING PIT. DO NOT "TEASE" ROOTS OUT FROM THE ROOTBALL.
   4. INSTALL THE TREE ON UNDISTURBED SUBGRADE SO THAT THE TOP OF THE ROOTBALL IS TWO TO FOUR INCHES ABOVE THE SURROUNDING GRADE.
   5. BACKFILL THE TREE HOLE UTILIZING THE EXISTING TOPSOIL FROM ON-SITE. ROCKS LARGER THAN 1" DIA. AND ALL OTHER DEBRIS SHALL BE REMOVED FROM THE SOIL PRIOR TO THE BACKFILL. SHOULD ADDITIONAL SOIL BE REQUIRED TO ACCOMPLISH THIS TASK, USE STORED TOPSOIL FROM ON-SITE OR IMPORT ADDITIONAL TOPSOIL FROM OFF-SITE AT NO ADDITIONAL COST TO THE OWNER. IMPORTED TOPSOIL SHALL BE OF SIMILAR TEXTURAL CLASS AND COMPOSITION IN THE ON-SITE SOIL.
   6. TREES SHALL NOT BE STAKED UNLESS LOCAL CONDITIONS (SUCH AS HEAVY WINDS OR SLOPES) REQUIRE STAKES TO KEEP TREES UPRIGHT. SHOULD STAKING BE REQUIRED, THE TOTAL NUMBER OF TREE STAKES (BEYOND THE MINIMUMS LISTED BELOW) WILL BE LEFT TO THE LANDSCAPE CONTRACTOR'S DISCRETION. SHOULD ANY TREES FALL OR LEAN, THE LANDSCAPE CONTRACTOR SHALL STRAIGHTEN THE TREE, OR REPLACE IT SHOULD IT BECOME DAMAGED. TREE STAKING SHALL ADHERE TO THE FOLLOWING GUIDELINES:
      a. 1"-2" TREES — TWO STAKES PER TREE
      b. 2-1/2"-4" TREES — THREE STAKES PER TREE
      c. TREES OVER 4" CALIPER — GUY AS NEEDED
      d. MULTI-TRUNK TREES — THREE STAKES PER TREE MINIMUM, QUANTITY AND POSITIONS AS NEEDED TO STABILIZE THE TREE
      e. MULTI-TRUNK TREES — THREE STAKES PER TREE MINIMUM, QUANTITY AND POSITIONS AS NEEDED TO STABILIZE THE TREE
   7. UPON COMPLETION OF PLANTING, CONSTRUCT AN EARTH WATERING BASIN AROUND THE TREE. COVER THE INTERIOR OF THE TREE RING WITH THE WEED BARRIER CLOTH AND TOPDRESS WITH MULCH (TYPE AND DEPTH PER PLANS).
E. SHRUB, PERENNIAL, AND GROUNDCOVER PLANTING
   1. DIG THE PLANTING HOLES TWICE AS WIDE AND 2" LESS DEEP THAN EACH PLANT'S ROOTBALL. INSTALL THE PLANT IN THE HOLE. BACKFILL AROUND THE PLANT WITH SOIL AMENDED PER SOIL TEST RECOMMENDATIONS.
   2. INSTALL THE WEED BARRIER CLOTH, OVERLAPPING IT AT THE ENDS. UTILIZE STEEL STAPLES TO KEEP THE WEED BARRIER CLOTH IN PLACE.
   3. WHEN PLANTING IS COMPLETE, INSTALL MULCH (TYPE AND DEPTH PER PLANS) OVER ALL PLANTING BEDS, COVERING THE ENTIRE PLANTING AREA.
F. SODDING
   1. SOD VARIETY TO BE AS SPECIFIED ON THE LANDSCAPE PLAN.
   2. LAY SOD WITHIN 24 HOURS FROM THE TIME OF STRIPPING. DO NOT LAY IF THE GROUND IS FROZEN.
   3. LAY THE SOD TO FORM A SOLID MASS WITH TIGHTLY FITTED JOINTS. BUTT ENDS AND SIDES OF SOD STRIPS - DO NOT OVERLAP. STAGGER STRIPS TO OFFSET JOINTS IN ADJACENT COURSES.
   4. ROLL THE SOD TO ENSURE GOOD CONTACT OF THE SOD'S ROOT SYSTEM WITH THE SOIL UNDERNEATH.
   5. WATER THE SOD THOROUGHLY WITH A FINE SPRAY IMMEDIATELY AFTER PLANTING TO OBTAIN AT LEAST SIX INCHES OF PENETRATION INTO THE SOIL BELOW THE SOD.
G. MULCH
   1. INSTALL MULCH TOPDRESSING, TYPE AND DEPTH PER MULCH NOTE, IN ALL PLANTING AREAS AND TREE RINGS.
   2. DO NOT INSTALL MULCH WITHIN 6" OF TREE ROOT FLARE AND WITHIN 24" OF HABITABLE STRUCTURES, EXCEPT AS MAY BE NOTED ON THESE PLANS. MULCH COVER WITHIN 6" OF CONCRETE WALKS AND CURBS SHALL NOT PROTRUDE ABOVE THE FINISH SURFACE OF THE WALKS AND CURBS. MULCH COVER WITHIN 12" OF WALLS SHALL BE AT LEAST 3" LOWER THAN THE TOP OF WALL.
H. CLEAN UP
   1. DURING LANDSCAPE PREPARATION AND PLANTING, KEEP ALL PAVEMENT CLEAN AND ALL WORK AREAS IN A NEAT, ORDERLY CONDITION.
   2. DISPOSED LEGALLY OF ALL EXCAVATED MATERIALS OFF THE PROJECT SITE.
I. INSPECTION AND ACCEPTANCE
   1. UPON COMPLETION OF THE WORK, THE LANDSCAPE CONTRACTOR SHALL PROVIDE THE SITE CLEAN, FREE OF DEBRIS AND TRASH, AND SUITABLE FOR USE AS INTENDED. THE LANDSCAPE CONTRACTOR SHALL THEN REQUEST AN INSPECTION BY THE OWNER TO DETERMINE FINAL ACCEPTABILITY.
   2. WHEN THE INSPECTED PLANTING WORK DOES NOT COMPLY WITH THE CONTRACT DOCUMENTS, THE LANDSCAPE CONTRACTOR SHALL REPLACE AND/OR REPAIR THE REJECTED WORK TO THE OWNER'S SATISFACTION WITHIN 24 HOURS.
   3. THE LANDSCAPE MAINTENANCE PERIOD WILL NOT COMMENCE UNTIL THE LANDSCAPE WORK HAS BEEN RE-INSPECTED BY THE OWNER AND FOUND TO BE ACCEPTABLE. AT THAT TIME, A WRITTEN NOTICE OF FINAL ACCEPTANCE WILL BE ISSUED BY THE OWNER, AND THE MAINTENANCE AND GUARANTEE PERIODS WILL COMMENCE.
J. LANDSCAPE MAINTENANCE
   1. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL WORK SHOWN ON THESE PLANS FOR 90 DAYS BEYOND FINAL ACCEPTANCE OF ALL LANDSCAPE WORK BY THE OWNER. LANDSCAPE MAINTENANCE SHALL INCLUDE WEEKLY SITE VISITS FOR THE FOLLOWING ACTIONS (AS APPROPRIATE): PROPER PRUNING, RESTAKING OF TREES, RESETTING OF PLANTS THAT HAVE SETTLED, MOWING AND AERATION OF LAWNS, WEEDING, TREATING FOR INSECTS AND DISEASES,REPLACEMENT OF MULCH, REMOVAL OF LITTER, REPAIRS TO THE IRRIGATION SYSTEM DUE TO FAULTY PARTS AND/OR WORKMANSHIP, AND THE APPROPRIATE WATERING OF ALL PLANTINGS. THE LANDSCAPE CONTRACTOR SHALL MAINTAIN THE IRRIGATION SYSTEM IN PROPER WORKING ORDER, WITH SCHEDULING ADJUSTMENTS BY SEASON TO MAXIMIZE WATER CONSERVATION.
   2. SHOULD SEEDED AND/OR SODDED AREAS NOT BE COVERED BY AN AUTOMATIC IRRIGATION SYSTEM, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR WATERING THESE AREAS AND OBTAINING A FULL, HEALTHY STAND OF PLANTS AT NO ADDITIONAL COST TO THE OWNER.
   3. TO ACHIEVE FINAL ACCEPTANCE AT THE END OF THE MAINTENANCE PERIOD, ALL OF THE FOLLOWING CONDITIONS MUST OCCUR:
      a. THE LANDSCAPE SHALL SHOW ACTIVE, HEALTHY GROWTH (WITH EXCEPTIONS MADE FOR SEASONAL DORMANCY). ALL PLANTS NOT MEETING THIS CONDITION SHALL BE REJECTED AND REPLACED BY HEALTHY PLANT MATERIAL PRIOR TO FINAL ACCEPTANCE.
      b. ALL HARDSCAPE SHALL BE CLEANED PRIOR TO FINAL ACCEPTANCE.
      c. SODDED AREAS MUST BE ACTIVELY GROWING AND MUST REACH A MINIMUM HEIGHT OF 1 1/2 INCHES BEFORE FIRST MOWING. BARE AREAS LARGER THAN TWELVE SQUARE INCHES MUST BE RESODDED (AS APPROPRIATE) PRIOR TO FINAL ACCEPTANCE. ALL SODDED TURF SHALL BE NEATLY MOWED.
K. WARRANTY PERIOD, PLANT GUARANTEE AND REPLACEMENTS
   1. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL TREES, SHRUBS, PERENNIALS, SOD, AND IRRIGATION SYSTEMS FOR A PERIOD OF ONE YEAR FROM THE DATE OF THE OWNER'S FINAL ACCEPTANCE (90 DAYS FOR ANNUAL PLANTS). THE CONTRACTOR SHALL REPLACE, AT HIS OWN EXPENSE AND TO THE SATISFACTION OF THE OWNER, ANY PLANTS WHICH DIE IN THAT TIME, OR REPAIR ANY PORTIONS OF THE IRRIGATION SYSTEM WHICH OPERATE IMPROPERLY.
   2. AFTER THE INITIAL MAINTENANCE PERIOD AND DURING THE GUARANTEE PERIOD, THE LANDSCAPE CONTRACTOR SHALL ONLY BE RESPONSIBLE FOR REPLACEMENT OF PLANTS WHEN PLANT DEATH CANNOT BE ATTRIBUTED DIRECTLY TO OVERWATERING OR OTHER DAMAGE BY HUMAN ACTIONS.
L. PROVIDE A MINIMUM OF (2) COPIES OF RECORD DRAWINGS TO THE OWNER UPON COMPLETION OF WORK. A RECORD DRAWING IS A RECORD OF ALL CHANGES THAT OCCURRED IN THE FIELD AND THAT ARE DOCUMENTED THROUGH CHANGE ORDERS, ADDENDA, OR CONTRACTOR/CONSULTANT DRAWING MARKUPS.

DUWEST ROCKWALL, TX

LEGAL DESCRIPTION AND OR ADDRESS:

STONE CREEK BALANCE LTD
ABSTRACT. NO 131
8.684 AC (378,275 SF)

OWNER:
DuWEST REALTY, LLC
4403 N.CENTRAL EXWAY SUITE #200
DALLAS, TX 75025
CONTACT: BOWEN HENDRIX
PH: 214.918.1804

APPLICANT:
CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
PH: 817.281.0572

CASE NUMBER
Z2022-003

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING AND ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____.

WITNESS OUR HANDS THIS ____ DAY OF _____.

_____
PLANNING AND ZONING COMMISSION, CHAIRMAN

_____
DIRECTOR OF PLANNING AND ZONING

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
1903 CENTRAL DR, SUITE #406
BEDFORD, TX 76021
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM

REGISTERED LANDSCAPE ARCHITECT
DARCY R. BRANDON
3423
STATE OF TEXAS

10/13/2022

EVERGREEN DESIGN GROUP
(800) 680-6630
15455 Dallas Pkwy., Ste 600
Addison, TX 75001
www.EvergreenDesignGroup.com

DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

LANDSCAPE PLANTING SPECIFICATIONS

DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	10/13/2022

SHEET
LP-3

File No. 2022-002

CASE # SP2022-042

PLOTTED BY: DARCY BRANDON
PLOT DATE: 10/13/2022 3:12 PM
LOCATION: C:\USERS\DARCY\DOCUMENTS\DBLA_PROJECTS\2022\LDG\CHIPOLTE DUWEST - ROCKWALL, TX\XREFS\2022-10-10 DUWEST ROCKWALL PHASE 2.DWG
LAST SAVED: 10/13/2022 3:10 PM

NOTE: TREE PROTECTION FOR ANY PRESERVED OR RELOCATED TREES MUST BE PROVIDED PER DETAILS AND SPECIFICATIONS ON SHEET TD-2. THESE MUST BE UP PRIOR TO THE COMMENCEMENT OF ANY WORK AND MAINTAINED THROUGHOUT CONSTRUCTION.

NOTE: ALL TREE TRIMMING MUST BE APPROVED BY THE OWNER AND LOCAL JURISDICTION PRIOR TO COMMENCEMENT OF WORK. ALL TREE TRIMMING MUST BE DONE BY AN ISA CERTIFIED ARBORIST IN ACCORDANCE WITH LOCAL TREE PRESERVATION ORDINANCE.

N 14°18'55" W 490.04'

96.09'

8.62 ACRES

CALLED 266.364 AC
STONE CREEK BALANC
VOL. 5010, PG. 2
D.R.R.C.T.

LIMIT OF WORK - PHASE 2
LIMIT OF WORK - PHASE 1
LIMIT OF WORK - PHASE 1
LIMIT OF WORK - PHASE 2
LIMIT OF WORK

CULVERT
DM=469.8'

CONCRETE CULVERT

STATE HIGHWAY 205
100' RIGHT-OF-WAY

N 54°44'31" W 165.14'

DIGITAL GROUP AHEAD

SITE DATA TABLE

	PHASE 2 (CHIPOTLE)	PHASE 1 (EXISTING)	TOTAL
SITE AREA	8.684 AC / 378,275 SF	8.684 AC / 378,275 SF	8.684 AC / 378,275 SF
ZONING	PD-70 (Planned Development)	PD-70 (Planned Development) GR (General Retail Dist.)	PD-70
PROPOSED USE	DRIVE-THRU RESTAURANT	RETAIL/DRIVE-THRU RESTAURANT	RETAIL/DRIVE-THRU RESTAURANT
BUILDING SIZE	2,325 SF	BLDG. B - 10,000 SF BLDG. C - 10,000 SF	20,325 SF
PATIO AREA	332 SF	2,777 SF	3,109 SF
LOT COVERAGE	0.06%	5.2%	5.26%
FLOOR AREA RATIO	0.00:1	0.05:1	0.06:1
BUILDING HEIGHT	1-STORY	1-STORY	1-STORY
IMPERVIOUS AREA	29,064 SF (0.8%)	116,406 SF (30.8%)	145,138 SF (38.3%)
OPEN SPACE	8.62 AC (92%)	6.04 AC (69.2%)	5.4 AC (61.7%)

PARKING DATA TABLE

PARKING REQUIRED	
DRIVE-THRU RESTAURANT (2,325 SF) 1 SPACE / 100 SF	24 SPACES
STANDARD PARKING	33 SPACES
ADA PARKING	2 SPACES
PARKING PROVIDED	
TOTAL PARKING	33 SPACES
ADA PARKING	2 SPACES

TREE MITIGATION SUMMARY

TOTAL MITIGATION REQUIRED:	387"
MITIGATION PROVIDED BY PLANTING 4" CALIPER TREES (78) TO BE PLANTED ONSITE:	312"
MITIGATION PROVIDED BY PURCHASING PRESERVATION CREDITS (20% OF TOTAL): (77.4" x $200 = $15,480 PAYMENT INTO THE CITY'S TREE FUND)	77.4"
TOTAL MITIGATION PROVIDED:	389.4"

LEGEND

- TREE TAG NUMBER
- EXISTING TREES TO BE PROTECTED IN PLACE
- TREE PROTECTION FENCE
- TREE TAG NUMBER
- EXISTING TREES TO BE REMOVED

SEE SHEET TD-2 FOR EXISTING TREE SURVEY TABLES & TREE MITIGATION CALCULATION TABLE
SEE SHEET LP-1 FOR PROPOSED REPLACEMENT TREES FOR MITIGATION.

Scale 1" = 20'

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WITNESS OUR HANDS THIS ____ DAY OF _____.

PLANNING AND ZONING COMMISSION, CHAIRMAN

DIRECTOR OF PLANNING AND ZONING

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DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

TREESCAPE PLAN

DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	10/13/2022

SHEET

TD-1

File No. 2022-002

CASE # SP2022-042

PLOTTED BY: DARCY BRANDON
PLOT DATE: 10/13/2022 3:13 PM
LOCATION: C:\USERS\DARCY\DOCUMENTS\DBLA_PROJECTS\2022\EDG\CHIPOLTE DUWEST - ROCKWALL, TX\XREFS\2022-10-10 DUWEST ROCKWALL PHASE 2.DWG
LAST SAVED: 10/13/2022 3:10 PM

EXISTING TREE SURVEY

TREE TAG	SPECIES	CALIPER		FEATURE TREE	FEATRUE TREE REMOVED (2:1)	MITIGATION	PRIMARY PROTECTED	PRIMARY PROTECTED REMOVED (1:1)	MITIGATION	SECONDARY PROTECTED	SECONDARY PROTECTED REMOVED (0.5:1)	MITIGATION	NON-PROTECTED	COMMENTS
5001	CEDAR	22								22				PRESERVE
5002	CEDAR	10											10	PRESERVE
5003	CEDAR	10											10	PRESERVE
5004	CEDAR	10											10	PRESERVE
5005	HACKBERRY	24								24				PRESERVE
5006	CEDAR	14								14				PRESERVE
5007	HACKBERRY	12								12				PRESERVE
5008	HACKBERRY	16								16				PRESERVE
5009	HACKBERRY	14								14				PRESERVE
5057	CEDAR	24								24				PRESERVE
5058	HACKBERRY	12								12				PRESERVE
5059	HACKBERRY	24								24				PRESERVE
5060	ELM	30		30										PRESERVE
5061	ELM	23					23							PRESERVE
5062	HACKBERRY	8											8	PRESERVE
5063	ELM	7					7							PRESERVE
5064	ELM	25		25										PRESERVE
5065	HACKBERRY	13								13				PRESERVE
5066	PECAN	50		50										PRESERVE
5067	PECAN	20					20							PRESERVE
5068	WILLOW	13											13	PRESERVE
5069	ELM	13					13							PRESERVE
5071	ELM	15					15							PRESERVE
5072	PECAN	39		39										PRESERVE
5073	PECAN	23					23							PRESERVE
5095	HACKBERRY	9											9	REMOVE
5096	ELM	6						6	6					REMOVE
5097	ELM	12						12	12					REMOVE
5098	HACKBERRY	11									11	5.5		REMOVE
5100	CEDAR	9											9	REMOVE
5153	CEDAR	6											6	REMOVE
5155	BOIS D'ARC	36			36	72								REMOVE
5156	CEDAR	10											10	REMOVE
5157	HACKBERRY	20									20	10		REMOVE
5158	BOIS D'ARC	8											8	REMOVE
5159	HACKBERRY	13									13	6.5		REMOVE
5170	CEDAR	10											10	PRESERVE
5171	BOIS D'ARC	40		40										PRESERVE
5172	CEDAR	12								12				PRESERVE
5173	CEDAR	7											7	PRESERVE
5174	BOIS D'ARC	31		31										PRESERVE
5175	CEDAR	8											8	REMOVE
5176	HACKBERRY	8											8	REMOVE
5177	CEDAR	6											6	REMOVE
5178	BOIS D'ARC	21											21	REMOVE
5179	HACKBERRY	8											8	REMOVE
5180	HACKBERRY	8											8	REMOVE
5181	CEDAR	10											10	REMOVE
5182	BOIS D'ARC	14											14	REMOVE
5183	CEDAR	6											6	REMOVE
5184	BOIS D'ARC	26			26	52								REMOVE
5185	HACKBERRY	10											10	REMOVE
5186	BOIS D'ARC	10											10	REMOVE
5187	HACKBERRY	9											9	REMOVE
5188	BOIS D'ARC	10											10	REMOVE
5189	BOIS D'ARC	14											14	REMOVE
5190	HACKBERRY	16									16	8		REMOVE
5191	ELM	10						10	10					REMOVE
5192	ELM	8						8	8					REMOVE
5193	ELM	6						6	6					REMOVE
5194	BOIS D'ARC	20											20	REMOVE
5195	BOIS D'ARC	11											11	REMOVE
5196	HERCULES CLUB	13						13	13					REMOVE
5197	BOIS D'ARC	33			33	66								REMOVE
5198	HACKBERRY	8											8	REMOVE
5199	HACKBERRY	6											6	REMOVE
5200	ELM	28			28	56								REMOVE
5201	CEDAR	12									12	6		REMOVE
5202	CEDAR	10											10	REMOVE
5203	ELM	25			25	50								REMOVE
5204	WILLOW	30		30										PRESERVE
5205	WILLOW	13											13	PRESERVE
5207	WILLOW	12											12	PRESERVE
5208	WILLOW	16											16	PRESERVE
TOTAL TREES ON SITE		1156		245			101			187			348	
TREES REMOVED					148			55			72			
MITIGATION REQUIRED		387				296			55			36		
20% INTO TREE FUND		77.4												
BALANCE MITIGATION		309.6												
4" TREES REQ. TO MEET MITIGATION		77.4												

TREE MITIGATION CALCULATION TABLE

DESCRIPTION	CALIPER INCHES	FEATURE TREES	FEATURE TREES REMOVED 2:1	PRIMARY PROTECTED TREES	PRIMARY PROTECTED REMOVED 1:1	SECONDARY PROTECTED TREES	SECONDARY PROTECTED REMOVED 0.5:1	NON-PROTECTED TREES
TOTAL TREES ON SITE	1,156	245		101		187		348
TOTAL PROTECTED TREES	3,194							
TREES REMOVED	838		148		55		72	
TOTAL MITIGATION REQUIRED	387		296		55		36	
20% INTO TREE FUND ($200 / INCH)	77.4							
4" TREES PLANTED FOR MITIGATION (78)	312							
TOTAL MITIGATION PROVIDED	389.4							

TEXAS REGISTRATION #14199

CLAYMOORE ENGINEERING

PHONE: 817.281.0572
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1903 CENTRAL DR, SUITE #406
BEDFORD, TX 76021

REGISTERED LANDSCAPE ARCHITECT
DARCY R. BRANDON
3423
STATE OF TEXAS

10/13/2022

DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

DUWEST ROCKWALL, TX

LEGAL DESCRIPTION AND OR ADDRESS:

STONE CREEK BALANCE LTD
ABSTRACT. NO 131
8.684 AC (378,275 SF)

OWNER:

DuWEST REALTY, LLC
4403 N.CENTRAL EXWAY SUITE #200
DALLAS, TX 75025
CONTACT: BOWEN HENDRIX
PH: 214.918.1804

APPLICANT:

CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
PH: 817.281.0572

CASE NUMBER

Z2022-003

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING AND ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____.

WITNESS OUR HANDS THIS ____ DAY OF _____.

_____
PLANNING AND ZONING COMMISSION, CHAIRMAN

_____
DIRECTOR OF PLANNING AND ZONING

EVERGREEN DESIGN GROUP
(800) 680-6630
15455 Dallas Pkwy., Ste 600
Addison, TX 75001
www.EvergreenDesignGroup.com

TREESCAPE INVENTORY & MITIGATION

DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	10/13/2022

SHEET

TD-2

File No. 2022-002

CASE # SP2022-042

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PLOT DATE: 10/13/2022 3:13 PM
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LAST SAVED: 10/13/2022 3:10 PM

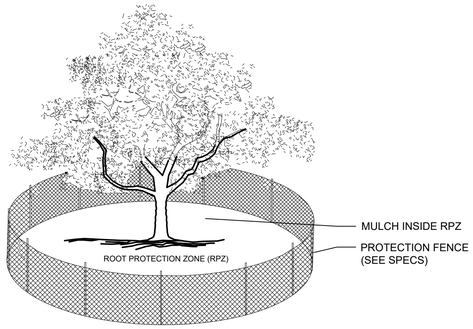
TREE PROTECTION SPECIFICATIONS

MATERIALS

1. FABRIC: 4 FOOT HIGH ORANGE PLASTIC FENCING AS SHOWN ON THE PLANS AND SHALL BE WOVEN WITH 2 INCH MESH OPENINGS SUCH THAT IN A VERTICAL DIMENSION OF 23 INCHES ALONG THE DIAGONALS OF THE OPENINGS THERE SHALL BE AT LEAST 7 MESHES.
2. POSTS: POSTS SHALL BE A MINIMUM OF 72 INCHES LONG AND STEEL 'T' SHAPED WITH A MINIMUM WEIGHT OF 1.3 POUNDS PER LINEAR FOOT.
3. TIE WIRE: WIRE FOR ATTACHING THE FABRIC TO THE T-POSTS SHALL BE NOT LESS THAN NO. 12 GAUGE GALVANIZED WIRE,
4. USED MATERIALS: PREVIOUSLY-USED MATERIALS, MEETING THE ABOVE REQUIREMENTS AND WHEN APPROVED BY THE OWNER, MAY BE USED.

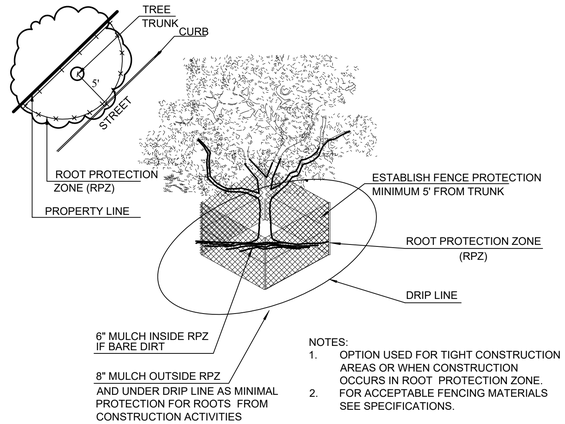
CONSTRUCTION METHODS

1. ALL TREES AND SHRUBS SHOWN TO REMAIN WITHIN THE PROXIMITY OF THE CONSTRUCTION SITE SHALL BE PROTECTED PRIOR TO BEGINNING ANY DEVELOPMENT ACTIVITY.
2. EMPLOY THE SERVICES OF AN ISA (INTERNATIONAL SOCIETY OF ARBORICULTURE) CERTIFIED ARBORIST AND OBTAIN ALL REQUIRED PERMITS TO PRUNE THE EXISTING TREES FOR CLEANING, RAISING AND THINNING, AS MAY BE REQUIRED.
3. PROTECTIVE FENCING SHALL BE ERECTED OUTSIDE THE CRITICAL ROOT ZONE (CRZ, EQUAL TO 1' FROM THE TRUNK FOR EVERY 1" OF DBH) AT LOCATIONS SHOWN IN THE PLANS OR AS DIRECTED BY THE LANDSCAPE CONSULTANT AND/OR CITY ARBORIST, AND IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS. FENCING SHALL BE MAINTAINED AND REPAIRED BY THE CONTRACTOR DURING SITE CONSTRUCTION. TREES IN CLOSE PROXIMITY SHALL BE FENCED TOGETHER, RATHER THAN INDIVIDUALLY.
4. PROTECTIVE FENCE LOCATIONS IN CLOSE PROXIMITY TO STREET INTERSECTIONS OR DRIVES SHALL ADHERE TO THE APPLICABLE JURISDICTION'S SIGHT DISTANCE CRITERIA.
5. THE PROTECTIVE FENCING SHALL BE ERECTED BEFORE SITE WORK COMMENCES AND SHALL REMAIN IN PLACE DURING THE ENTIRE CONSTRUCTION PHASE.
6. THE INSTALLATION POSTS SHALL BE PLACED EVERY 6 FEET ON CENTER AND EMBEDDED TO 18 INCHES DEEP. MESH FABRIC SHALL BE ATTACHED TO THE INSTALLATION POSTS BY THE USE OF SUFFICIENT WIRE TIES TO SECURELY FASTEN THE FABRIC TO THE T-POSTS TO HOLD THE FABRIC IN A STABLE AND UPRIGHT POSITION.
7. WITHIN THE CRZ:
   a. DO NOT CLEAR, FILL OR GRADE IN THE CRZ OF ANY TREE.
   b. DO NOT STORE, STOCKPILE OR DUMP ANY JOB MATERIAL, SOIL OR RUBBISH UNDER THE SPREAD OF THE TREE BRANCHES.
   c. DO NOT PARK OR STORE ANY EQUIPMENT OR SUPPLIES UNDER THE TREE CANOPY.
   d. DO NOT SET UP ANY CONSTRUCTION OPERATIONS UNDER THE TREE CANOPY (SUCH AS PIPE CUTTING AND THREADING, MORTAR MIXING, PAINTING OR LUMBER CUTTING).
   e. DO NOT NAIL OR ATTACH TEMPORARY SIGNS METERS, SWITCHES, WIRES, BRACING OR ANY OTHER ITEM TO THE TREES.
   f. DO NOT PERMIT RUNOFF FROM WASTE MATERIALS INCLUDING SOLVENTS, CONCRETE WASHOUTS, ASPHALT TACK COATS (MC-30 OIL), ETC. TO ENTER THE CRZ. BARRIERS ARE TO BE PROVIDED TO PREVENT SUCH RUNOFF SUBSTANCES FROM ENTERING THE CRZ WHENEVER POSSIBLE, INCLUDING IN AN AREA WHERE RAIN OR SURFACE WATER COULD CARRY SUCH MATERIALS TO THE ROOT SYSTEM OF THE TREE.
8. ROUTE UNDERGROUND UTILITIES TO AVOID THE CRZ. IF DIGGING IS UNAVOIDABLE, BORE UNDER THE ROOTS, OR HAND DIG TO AVOID SEVERING THEM.
9. WHERE EXCAVATION IN THE VICINITY OF TREES MUST OCCUR, SUCH AS FOR IRRIGATION INSTALLATION, PROCEED WITH CAUTION, AND USING HAND TOOLS ONLY.
10. THE CONTRACTOR SHALL NOT CUT ROOTS LARGER THAN ONE INCH IN DIAMETER WHEN EXCAVATION OCCURS NEAR EXISTING TREES. ALL ROOTS LARGER THAN ONE INCH IN DIAMETER ARE TO BE CUT CLEANLY. FOR OAKS ONLY, ALL WOUNDS SHALL BE PAINTED WITH WOUND SEALER WITHIN 30 MINUTES
11. REMOVE ALL TREES, SHRUBS OR BUSHES TO BE CLEARED FROM PROTECTED ROOT ZONE AREAS BY HAND.
12. TREES DAMAGED OR KILLED DUE TO CONTRACTOR'S NEGLIGENCE DURING CONSTRUCTION SHALL BE MITIGATED AT THE CONTRACTOR'S EXPENSE AND TO THE PROJECT OWNER'S AND LOCAL JURISDICTION'S SATISFACTION.
13. ANY TREE REMOVAL SHALL BE APPROVED BY THE OWNER AND LOCAL JURISDICTION PRIOR TO ITS REMOVAL, AND THE CONTRACTOR SHALL HAVE ALL REQUIRED PERMITS FOR SUCH ACTIVITIES.
14. COVER EXPOSED ROOTS AT THE END OF EACH DAY WITH SOIL, MULCH OR WET BURLAP.
15. IN CRITICAL ROOT ZONE AREAS THAT CANNOT BE PROTECTED DUING CONSTRUCTION AND WHERE HEAVY TRAFFIC IS ANTICIPATED, COVER THE SOIL WITH EIGHT INCHES OF ORGANIC MULCH TO MINIMIZE SOIL COMPACTION. THIS EIGHT INCH DEPTH OF MULCH SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
16. WATER ALL TREES IMPACTED BY CONSTRUCTION ACTIVITIES, DEEPLY ONCE A WEEK DURING PERIODS OF HOT DRY WEATHER. SPRAY TREE CROWNS WITH WATER PERIODICALLY TO REDUCE DUST ACCUMULATION ON THE LEAVES.
17. WHEN INSTALLING CONCRETE ADJACENT TO THE ROOT ZONE OF A TREE, USE A PLASTIC VAPOR BARRIER BEHIND THE CONCRETE TO PROHIBIT LEACHING OF LIME INTO THE SOIL.
18. CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL TREE PROTECTION FENCING WHEN ALL THREATS TO THE EXISTING TREES FROM CONSTRUCTION-RELATED ACTIVITIES HAVE BEEN REMOVED.



NOTES:
1. THE FENCING LOCATION SHOWN ABOVE IS DIAGRAMATIC ONLY AND WILL CONFORM TO THE DRIP LINE AND BE LIMITED TO PROJECT BOUNDARY. WHERE MULTIPLE ADJACENT TREES WILL BE ENCLOSED BY FENCING, THE FENCING SHALL BE CONTINUOUS AROUND ALL TREES.
2. FOR ACCEPTABLE FENCING MATERIALS SEE SPECIFICATIONS.

A TREE PROTECTION FENCE
SCALE: NOT TO SCALE

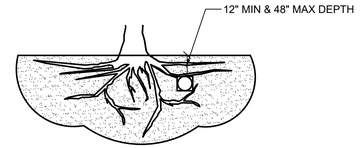


NOTES:
1. OPTION USED FOR TIGHT CONSTRUCTION AREAS OR WHEN CONSTRUCTION OCCURS IN ROOT PROTECTION ZONE.
2. FOR ACCEPTABLE FENCING MATERIALS SEE SPECIFICATIONS.

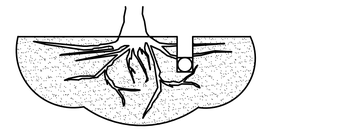
B TREE PROTECTION FENCE - TIGHT CONSTRUCTION
SCALE: NOT TO SCALE

TREES THAT ARE MARKED TO BE PRESERVED ON A SITE PLAN AND FOR WHICH UTILITIES MUST PASS TROUGH THEIR ROOT PROTECTION ZONES MAY REQUIRE TUNNELING AS OPPOSED TO OPEN TRENCHES. THE DECISION TO TUNNEL WILL BE DETERMINED ON A CASE BY CASE BASIS BY THE ENGINEER.

TUNNELS SHALL BE DUG THROUGH THE ROOT PROTECTION ZONE IN ORDER TO MINIMIZE ROOT DAMAGE.



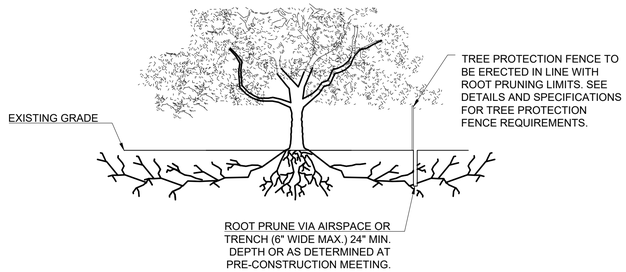
TUNNEL TO MINIMIZE ROOT DAMAGE (TOP) AS OPPOSED TO SURFACE-DUG TRENCHES IN ROOT PROTECTION ZONE WHEN THE 5' MINIMUM DISTANCE FROM TRUNK CAN NOT BE ACHIEVED.



OPEN TRENCHING MAY BE USED IF EXPOSED TREE ROOTS DO NOT EXCEED 3" OR ROOTS CAN BE BENT BACK.

C BORING THROUGH ROOT PROTECTION ZONE
SCALE: NOT TO SCALE

NOTES
1. RETENTION AREAS WILL BE SET AS PART OF THE REVIEW PROCESS AND PRE-CONSTRUCTION MEETING.
2. BOUNDARIES OF RETENTION AREAS MUST BE STAKED AT THE PRE-CONSTRUCTION MEETING AND FLAGGED PRIOR TO ROOT PRUNING.
3. EXACT LOCATION OF ROOT PRUNING SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE FORESTRY INSPECTOR .
4. TRENCH SHOULD BE IMMEDIATELY BACKFILLED WITH EXCAVATED SOIL OR OTHER ORGANIC SOIL AS SPECIFIED PER PLAN OR BY THE FORESTRY INSPECTOR.
5. ROOTS SHALL BE CLEANLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE EQUIPMENT. ROT PRUNING METHODS AND MEANS MUST BE IN ACCORDANCE WITH ANSI STANDARD A3000.
6. ALL PRUNING MUST BE EXECUTED AT LOD SHOWN ON PLANS OR AS AUTHORIZED IN WRITING BY THE FORESTRY INSPECTOR .
7. SUPPLEMENTAL WATERING MAY BE REQUIRED FOR ROOT PRUNED TREES THROUGHOUT THE GROWING SEASON DURING CONSTRUCTION AND SUBSEQUENT WARRANTY AND MAINTENANCE PERIOD.



D ROOT PRUNING DETAIL
SCALE: NOT TO SCALE

TREE PROTECTION GENERAL NOTES

(A) PRIOR TO THE LAND CLEARING STAGE OF DEVELOPMENT, THE CONTRACTOR SHALL CLEARLY MARK ALL PROTECTED TREES FOR WHICH A TREE REMOVAL PERMIT HAS NOT BEEN ISSUED AND SHALL ERECT BARRIERS FOR THE PROTECTION OF THE TREES ACCORDING TO THE FOLLOWING:
(1) AROUND AN AREA AT OR GREATER THAN A SIX-FOOT RADIUS OF ALL SPECIES OF MANGROVES AND PROTECTED CABBAGE PALMS;
(2) AROUND AN AREA AT OR GREATER THAN THE FULL DRIPLINE OF ALL PROTECTED NATIVE PINES;
(3) AROUND AN AREA AT OR GREATER THAN TWO-THIRDS OF THE DRIPLINE OF ALL OTHER PROTECTED SPECIES.

(B) NO PERSON SHALL ATTACH ANY SIGN, NOTICE OR OTHER OBJECT TO ANY PROTECTED TREE OR FASTEN ANY WIRES, CABLES, NAILS OR SCREWS TO ANY PROTECTED TREE IN ANY MANNER THAT COULD PROVE HARMFUL TO THE PROTECTED TREE, EXCEPT AS NECESSARY IN CONJUNCTION WITH ACTIVITIES IN THE PUBLIC INTEREST.

(C) DURING THE CONSTRUCTION STAGE OF DEVELOPMENT, THE CONTRACTOR SHALL NOT CAUSE OR PERMIT THE CLEANING OF EQUIPMENT OR MATERIAL WITHIN THE OUTSIDE PERIMETER OF THE CROWN (DRIPLINE) OR ON THE NEARBY GROUND OF ANY TREE OR GROUP OF TREES WHICH IS TO BE PRESERVED. WITHIN THE OUTSIDE PERIMETER OF THE CROWN (DRIPLINE) OF ANY TREE OR ON NEARBY GROUND, THE CONTRACTOR SHALL NOT CAUSE OR PERMIT STORAGE OF BUILDING MATERIAL AND/OR EQUIPMENT, OR DISPOSAL OF WASTE MATERIAL SUCH AS PAINTS, OIL, SOLVENTS, ASPHALT, CONCRETE, MORTAR OR ANY OTHER MATERIAL HARMFUL TO THE LIFE OF THE TREE.

(D) NO PERSON SHALL PERMIT ANY UNNECESSARY FIRE OR BURNING WITHIN 30 FEET OF THE DRIPLINE OF A PROTECTED TREE.

(E) ANY LANDSCAPING ACTIVITIES WITHIN THE BARRIER AREA SHALL BE ACCOMPLISHED WITH HAND LABOR.

(F) PRIOR TO ISSUING A CERTIFICATE OF OCCUPANCY OR COMPLIANCE FOR ANY DEVELOPMENT, BUILDING OR STRUCTURE, ALL TREES DESIGNATED TO BE PRESERVED THAT WERE DESTROYED DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR WITH TREES OF EQUIVALENT DIAMETER AT BREAST HEIGHT TREE CALIPER AND OF THE SAME SPECIES AS SPECIFIED BY THE CITY ADMINISTRATOR, BEFORE OCCUPANCY OR USE, UNLESS APPROVAL FOR THEIR REMOVAL HAS BEEN GRANTED UNDER PERMIT.

(G) THE CITY ADMINISTRATOR MAY CONDUCT PERIODIC INSPECTIONS OF THE SITE DURING LAND CLEARANCE AND CONSTRUCTION.

(H) IF, IN THE OPINION OF THE CITY ADMINISTRATOR, DEVELOPMENT ACTIVITIES WILL SO SEVERELY STRESS SLASH PINES OR ANY OTHER PROTECTED TREE SUCH THAT THEY ARE MADE SUSCEPTIBLE TO INSECT ATTACK, PREVENTATIVE SPRAYING OF THESE TREES BY THE CONTRACTOR MAY BE REQUIRED.

DUWEST ROCKWALL, TX

LEGAL DESCRIPTION AND OR ADDRESS:

STONE CREEK BALANCE LTD
ABSTRACT. NO 131
8.684 AC (378,275 SF)

OWNER:
DuWEST REALTY, LLC
4403 N.CENTRAL EXWAY SUITE #200
DALLAS, TX 75025
CONTACT: BOWEN HENDRIX
PH: 214.918.1804

APPLICANT:
CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
PH: 817.281.0572

CASE NUMBER
Z2022-003

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING AND ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____.

WITNESS OUR HANDS THIS ____ DAY OF _____.

_____
PLANNING AND ZONING COMMISSION, CHAIRMAN

_____
DIRECTOR OF PLANNING AND ZONING

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM
1903 CENTRAL DR, SUITE #406
BEDFORD, TX 76021

REGISTERED LANDSCAPE ARCHITECT
DARCY R. BRANDON
3423
STATE OF TEXAS

10/13/2022

DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

EVERGREEN DESIGN GROUP
(800) 680-6630
15455 Dallas Pkwy., Ste 600
Addison, TX 75001
www.EvergreenDesignGroup.com

TREESCAPE DETAILS & SPECIFICATIONS

DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	10/13/2022

SHEET
TD-3

File No. 2022-002

CASE # SP2022-042

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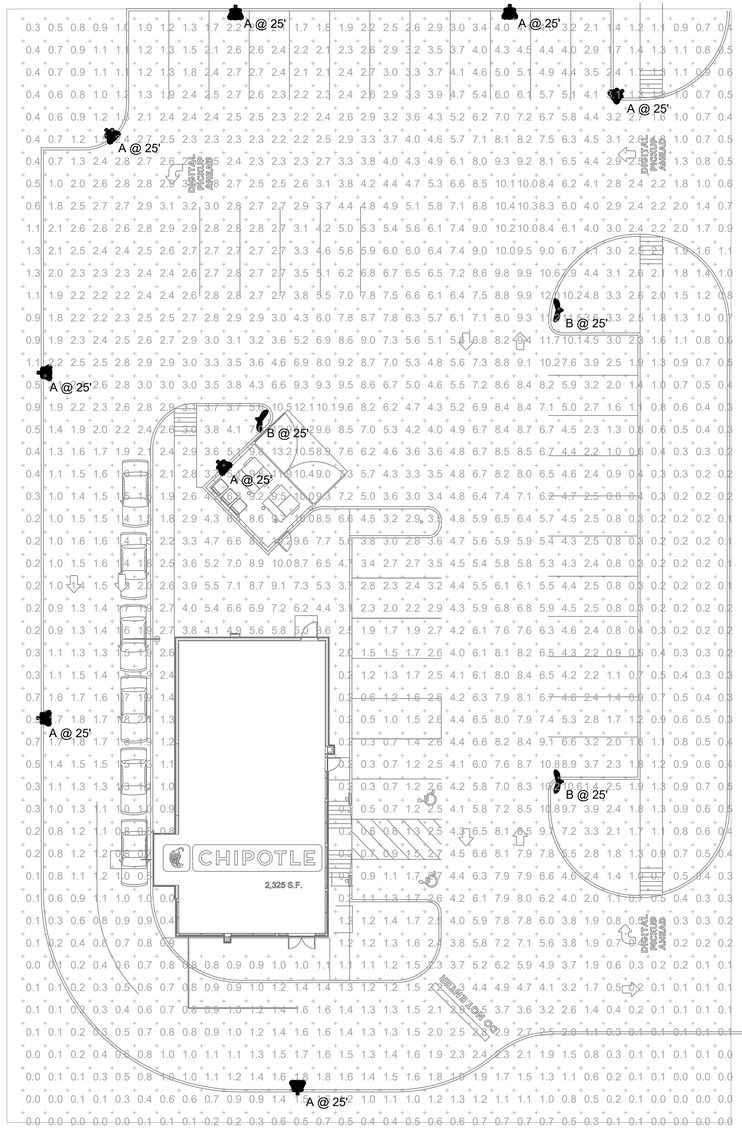

COIT ROAD

Plan View
Scale - 1" = 20ft

Schedule

Symbol	Label	Image	QTY	Manufacturer	Catalog	Description	Number Lamps	Lamp Output	LLF	Input Power	Polar Plot
	A		8	Beacon Products	VP-1-36L-39-4K7-4F	VIPER	1	5465	1	39.6	Max: 6136cd
	B		3	BEACON PRODUCTS	VP-2-320L-185-4K7-2		1	26667	1	185.7	Max: 28295cd

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Site	+	3.0 fc	13.2 fc	0.0 fc	N/A	N/A

Consultant:

ARCHITECT OF RECORD

ROGUE ARCHITECTS

513 MAIN STREET, SUITE 300
FORT WORTH, TEXAS 76102
(817) 820-0433

STATE OF TEXAS
DARRELL ROY CASE
82433
REGISTERED
PROFESSIONAL ENGINEER

12/09/2022

DUWEST
CREATING, ENHANCING & PROTECTING VALUE

ROCKWALL NORTH SHELL
SH205 & QUAIL RUN ROAD
ROCKWALL, TX

Issue Record:

Revisions:

Drawn:	Checked:
JJV	BW

Project No.
ROGUE #22-0547

Contents:
SITE PHOTOMETRIC

E002

CASE Engineering Inc.

796 Merus Court
St. Louis, MO 63026
T 636.349.1600
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CERTIFICATE OF AUTHORITY NO. F-20080

BANNISTER
ENGINEERING

FLOOD STUDY

FOR

Stone Creek Retail
Located in Rockwall
Rockwall County, Texas
OF
Tributary D of Squabble Creek

PREPARED FOR:
DuWest
4403 N. Central Expressway, Suite200
Dallas, TX 75205

PREPARED BY:
Bannister Engineering, LLC
TX Firm No. 10599
240 N. Mitchel Road
Mansfield, Texas 76063
Phone (817) 842-2094
Fax (817) 842-2095

Date: March 15, 2022

3-15-2022

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2.6.Detention

2.7.Results

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3.2.Existing Conditions Model

3.3.Proposed Conditions Model

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4. CONCLUSION

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4. FEMA Effective Model Output
5. FEMA Effective Profile
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B. DIGITAL DATA (DISK)

1. INTRODUCTION

The proposed commercial development is about 8.6 acres located near the northeast corner of North Goliad Street and East Quail Run Road in the City of Rockwall in Rockwall County, Texas. See the Location Map (Exhibit 1).

Squabble Creek Tributary D runs from east to west through the site. A LOMR was done in August 29, 2014. The LOMR is shown on the Effective FIRM panel dated 9-26-2008 (48397C0030L) is included as Exhibit 2.

The purpose of this submittal is to provide sufficient documentation in accordance with sound engineering standards and practices to demonstrate that the development will not cause any adverse impact in accordance to the City's Squabble Creek Watershed ordinance.

2. HYDROLOGY

2.1.Methodology

The following information about hydrology is not intended to revise discharges used in stream modeling by FEMA. The intent is to demonstrate the development's impact on hydrology. The Squabble Creek Watershed hydrology model and GIS files were provided by the City. The model provided was HEC-HMS V4.2.1. Discrepancies in the drainage boundaries were discovered in and near the site. The drainage boundary east of the site did not match the drainage pattern around the fire station. Also, the drainage boundary did not match the drainage pattern along East Quail Run Road. The hydrology model had the CN for "SQ036" at a developed rate. The drainage areas and CN's were recalculated for the impacted drainage areas "SQ012", "SQ015b", "SQ034e", "SQ034f", and "SQ036". The time of concentration was recalculated for subbasin "SQ036". This is the basis for the pre-project hydrology model. This study will compare the results from the effective/revised existing hydrology to the pre-project and the post-project hydrology. The comparison uses design points from upstream of the site to the very downstream end of the model at Lake Ray Hubbard. This study uses the same HEC-HMS version for consistency. It was not updated to the latest HEC-HMS version. The 5-year (20% annual chance), 10-year (10% annual chance), 25-year (4% annual chance), 50-year (2% annual chance), and 100-year (1% annual chance) conditions were modeled. The post-project 100-year fully developed conditions were modeled to determine fill elevations to provide the required 2' of freeboard. The HEC-HMS files are located on the CD.

2.2.Drainage Basin Characteristics

The drainage basin of Squabble Creek Tributary D at the site (North Goliad Street) is about 135.3 acres. The site is 6% of the contributing area. Normally, this location would be the end of the analysis because the limit of the zone of influence is at the point where the contributing area is less than 10% of the overall area. The Squabble Creek Watershed ordinance requires the analysis to be reviewed all the way to Lake Ray Hubbard. All drainage areas upstream of the site are fully developed. The drainage boundaries mentioned previously were corrected for subbasins "SQ012", "SQ015b", "SQ034e", "SQ034f", and "SQ036". These subbasins are shown on the Pre-Project Drainage Area Map Exhibit 6. The areas and CN's were recalculated. In the proposed conditions the drainage boundary for subbasin "SQ034f" was revised. A land use map is shown on Exhibit 8. The runoff Curve Numbers (CN) were obtained from the City of Rockwall's drainage manual. The CN's were adjusted to conform to AMC-3. The hydrologic soil groups in the drainage

area are mostly D soils with some B soils. A soils map is shown on Exhibit 8. The existing hydrology calculations are shown on Exhibit 7.

The proposed drainage areas were revised by directing 1.72 acres of subbasin "SQ036" to the existing detention pond. The existing detention pond will be expanded which will capture 0.47 acres from subbasin "SQ034f". These two revisions increased subbasin "SQ034e" by 2.19 acres. The proposed drainage area map is included as Exhibit 9. A proposed land use and soils map is shown on Exhibit 11.

2.3.Time of Concentration

The Time of Concentration (T_C) was recalculated for "SQ034e", SQ034f", and for "SQ036", which contains the site. Tc was calculated based on methods outlined in the NCTCOG hydrology manual. The four types of flows that were used in calculating T_C was sheet flow, shallow concentrated flow, pipe flow, and channel flow. The T_C was located where the highest T_C was generated. The T_C paths are shown on Exhibit 6. The formula to calculate T_C for sheet flow uses runoff coefficients for land use. A maximum distance of 100' was used for sheet flow. The formula for calculating average velocity for shallow concentrated flow uses a coefficient of 16.13 for unpaved and 20.33 for paved conditions. Channel flow was estimated at 6 ft/sec. The SCS Unit Hydrograph method requires a Lag Time (T_{lag}). T_{lag} is 60% of T_C. The existing T_C calculation is shown on Exhibit 7.

The existing T_C that travels through the site was modified for conceptual proposed conditions. The travel path, inlet location, and storm pipe location were assumed. The calculation is shown on Exhibit 10.

2.4.Storm Characteristics

This element of the hydrology modeling was not revised from the original method.

2.5.Stream Routing

There are two stream routings that were revised based on the update made to the HEC-RAS model. Reaches "R_SQ015e" and "R_SQ015f". The routing method for these is "Modified Puls". This method requires a floodplain storage-discharge relationship. This is created with the HEC-RAS model. The tables for these two routings are shown on Exhibit 7. The HEC-RAS model is included on the CD.

The development fills a portion of the floodplain. As a result, it decreases floodplain storage. Excavation within the floodplain helps to offset the loss. The routings for reaches "R_SQ015e" and "R_SQ015f" were updated based on the proposed grading within the floodplain. The tables for these two routings are shown on Exhibit 10. The HEC-RAS model is included on the CD.

2.6.Detention

There are numerous detention structures modeled in the hydrology for the Squabble Creek watershed. The Stone Creek Phase 7 subdivision built a large detention pond ("Stone Creek Phase 7") near the site. The existing berm is about 9 feet tall. It has a maximum volume of 22.15 acre-feet at the top of the berm. This detention pond will be expanded for the proposed development. The modeling of the existing pond was reviewed. It was determined that the volume of the pond needed to be more accurately measured. The elevation-area table was developed from the construction plans of the pond. The calculation is shown on Exhibit 7. The applicable sheet is included on the CD. The pond

volume calculations were not found. The calculation was recreated by tracing contours from the grading plan.

The development is including the expansion of the existing detention pond to help offset negative impacts. The expansion will increase the volume to 24.42 acre-ft. The height of the existing berm will not be increased. Even though the height of the dam is above the 6-foot threshold for dam regulation, the volume is below the 50 acre-ft threshold for dam regulation. An emergency spillway will be added to the berm at 500.0. The outlet structure is to remain the same. A basic grading plan is included as Exhibit 20. More detailed information for the grading and the detention pond will be shown on the civil plans. Table 1 shows the results of the proposed detention pond which demonstrates a freeboard in excess of 2 feet as measured from the top of the berm.

TABLE 1

PROPOSED DETENTION POND SUMMARY

Storm Event	Discharge In	Top of Berm	Max. Storage	Discharge Out	Peak Elevation	Utilized Storage	Freeboard
	(cfs)		(ac.ft.)	(cfs)		(ac.ft.)	(ft)
100-YEAR	419.8	502	24.42	127.9	499.66	15.21	2.34
25-YEAR	327.8	502	24.42	70.2	498.83	12.21	3.17
10-YEAR	278.9	502	24.42	64.8	498.15	9.87	3.85
5-YEAR	230.3	502	24.42	58.8	497.47	7.62	4.53

2.7.Results

Table 2 demonstrates the results of the revisions made to the MDS hydrology model by the pre-project model. Tributary D had a maximum increase of 11.0 cfs (2.3%). The maximum decrease in Tributary D is 2.1 cfs (0.1%). There were no increases in Squabble creek. Squabble Creek had a maximum decrease of 9.0 cfs (0.3%)

TABLE 2

MDS/PRE-PROJECT 100-YEAR DISCHARGE SUMMARY

MDS		PRE-PROJECT		
DESIGN POINT	DISCHARGE	DESIGN POINT	DISCHARGE	DIFFERENCE
	(cfs)		(cfs)	(cfs)
SQ012	169.0	SQ012	164.3	-4.7
SQ015b	35.2	SQ015b	34.5	-0.7
SQ034a	203.9	SQ034a	203.9	0.0
SQ034b	236.7	SQ034b	236.7	0.0
SQ034c	83.9	SQ034c	83.9	0.0
SQ034d	103.9	SQ034d	103.9	0.0
SQ034e	380.9	SQ034e	403.8	22.9
SQ034f	67.8	SQ034f	52.9	-14.9
SQ034g	92.4	SQ034g	92.4	0.0
SQ036	86.4	SQ036	77.8	-8.6
Stone Creek Phase 7	130.3	Stone Creek Phase 7	136.3	6.0
J_SQ008	509.7	J_SQ008	508.9	-0.8
J_SQ009	531.5	J_SQ009	530.7	-0.8
J_SQ010	1125.5	J_SQ010	1125.2	-0.3
J_SQ021	2377.7	J_SQ021	2376.1	-1.6
J_SQ023	2429.2	J_SQ023	2427.6	-1.6
J_SQ024	2425.0	J_SQ024	2423.0	-2.0
J_SQ025	2680.3	J_SQ025	2678.2	-2.1
J_SQ026c	447.8	J_SQ026c	447.8	0.0
J_SQ026d	475.0	J_SQ026d	486.0	11.0
J_SQ026e	474.1	J_SQ026e	477.9	3.8
J_SQ026f	472.4	J_SQ026f	477.1	4.7
J_SQ026g	431.5	J_SQ026g	430.7	-0.8
J_SQ027	436.5	J_SQ027	435.4	-1.1
J_SQ029	595.5	J_SQ029	594.4	-1.1
J_SQ030	3206.7	J_SQ030	3206.1	-0.6
J_SQ031	2776.8	J_SQ031	2770.9	-5.9
J_SQ034	3032.3	J_SQ034	3023.6	-8.7
J_SQ035	2999.3	J_SQ035	2992.0	-7.3
J_SQ037	3006.3	J_SQ037	2997.4	-8.9
J_SQ039	3080.6	J_SQ039	3071.6	-9.0
J_SQ040	3188.2	J_SQ040	3185.4	-2.8
J_SQ041	3529.5	J_SQ041	3525.4	-4.1

Initially, the development had a negative impact on discharges. About 95% of the impact is due to filling within the floodplain thereby reducing floodplain storage. Two actions were

done to reverse the negative impacts. One action that was done was to expand the existing Stone Creek Phase 7 detention pond and diverting 1.72 acres from the site to the pond. The second action that was done was to excavate within the floodplain to increase floodplain storage. The results are shown on Table 3. There is an increase in flow of 16.0 cfs from subbasin "SQ034e" which drains to the Stone Creek Phase 7 detention pond, but the detention pond reduces the discharge by 8.4 cfs (6.2%) compared to the pre-project conditions. Subbasin "SQ036" which contains the site has a decrease in discharge of 6.1 cfs but at the point where flows are joined in Tributary D and leaves the property ("J_SQ026g") the discharge is reduced by 7.4 cfs (1.7%). Tributary D had a maximum decrease of 11.4 cfs (2.3%). There are no increases in discharge in Tributary D. The greatest reduction in discharge in Squabble Creek is 19.8 cfs (0.6%). There are no increases in discharge in Squabble Creek. See Exhibit 10 for detention results.

TABLE 3

PRE-PROJECT/POST-PROJECT 100-YEAR COMPARISON					
PRE-PROJECT		POST-PROJECT			MDS
DESIGN POINT	DISCHARGE (cfs)	DESIGN POINT	DISCHARGE (cfs)	DIFFERENCE (cfs)	DISCHARGE
SQ034e	403.8	SQ034e	419.8	16.0	380.9
SQ034f	52.9	SQ034f	49.4	-3.5	67.8
SQ036	77.8	SQ036	71.7	-6.1	86.4
Stone Creek Phase 7	136.3	Stone Creek Phase 7	127.9	-8.4	130.3
J_SQ026d	486.0	J_SQ026d	474.6	-11.4	475.0
J_SQ026e	477.9	J_SQ026e	469.0	-8.9	474.1
J_SQ026f	477.1	J_SQ026f	473.6	-3.5	472.4
J_SQ026g	430.7	J_SQ026g	423.3	-7.4	431.5
J_SQ027	435.4	J_SQ027	428.0	-7.4	436.5
J_SQ029	594.4	J_SQ029	586.9	-7.5	595.5
J_SQ030	3206.1	J_SQ030	3186.3	-19.8	3206.7
J_SQ031	2770.9	J_SQ031	2757.6	-13.3	2776.8
J_SQ034	3023.6	J_SQ034	3010.4	-13.2	3032.3
J_SQ035	2992.0	J_SQ035	2978.7	-13.3	2999.3
J_SQ037	2997.4	J_SQ037	2985.8	-11.6	3006.3
J_SQ039	3071.6	J_SQ039	3060.1	-11.5	3080.6
J_SQ040	3185.4	J_SQ040	3185.4	0.0	3188.2
J_SQ041	3525.4	J_SQ041	3525.4	0.0	3529.5

Table 4 shows the comparison between Stone Creek Phase 7 hydrology and the post-project hydrology.

TABLE 4

STONE CREEK PH 7		POST-PROJECT		
DESIGN POINT	DISCHARGE	DESIGN POINT	DISCHARGE	DIFFERENCE
	(cfs)		(cfs)	(cfs)
Subbasin 6	396.7	SQ034e	419.8	23.1
Subbasin 8	71.0	SQ034f	49.4	-21.6
Subbasin 7	89.8	SQ036	71.7	-18.1
Reservoir-2 FD	131.8	Stone Creek Phase 7	127.9	-3.9
Junction 2A	478.4	J_SQ026d	474.6	-3.8
Junction 3	477.5	J_SQ026e	469.0	-8.5
Junction 4	475.5	J_SQ026f	473.6	-1.9
Junction 5	433.0	J_SQ026g	423.3	-9.7

3. HYDRAULICS

3.1.Effective Model

The FEMA effective hydraulic model was requested from FEMA. The model is HEC-RAS 4.1.0 from the Stone Creek Phase 4 LOMR dated 8-29-2014. The FEMA 100-year water surface elevations are shown on Table 5. The effective 100-year floodplain and cross sections are shown on Exhibit 12. The output is included as Exhibit 4. The stream profile is included as Exhibit 5. The HEC-RAS model is found on the CD. The plan name is "Effective".

The MDS hydraulic model from the Master Drainage Study was obtained from the City. The version used was 5.0.7. The basis of the model is the Stone Creek Phase 4 LOMR. The City has maintained and updated the model separately from FEMA's model. As a result, certain areas are more up-to-date. This model will not be sent to FEMA for their review as it would entail revisions well beyond the impact of the development. The MDS 100-year water surface elevations are shown on Table 6. The HEC-RAS model is found on the CD. The plan name is "Revised Existing".

3.2.Pre-Project Model

The FEMA effective model was revised and ran with the same HEC-RAS version to eliminate any differences of results between versions. The plan name is "Pre-Project".

The entire property was surveyed by Corwin Engineering in 2016 for topography which includes the channel. Bannister Engineering surveyed sections at the channel in August 2021. Cross sections 1202 to 1622 were updated with the survey. Ineffective flow limits were added to the upstream side of North Goliad Street at cross section 1202. No other revisions were made to the modeling of North Goliad Street. Cross section 1538 was removed and was replace with cross sections 1513 and 1563. The n-values were not revised. The pre-project 100-year floodplain was mapped and shown on Exhibit 12. The maximum increase was 0.06 feet located just upstream of the site. The maximum decrease was 0.01 feet located on the upstream side of North Goliad Street.

The MDS model was revised and ran with the same HEC-RAS version to eliminate any differenced of results between versions. The 100-year (1% annual chance) fully developed discharges were used in the model. The plan name is "Pre-Project".

The same revisions that were done to the FEMA effective model was done to the MDS model. Plus, corrections were made to North Goliad Street. The downstream side had been updated from the FEMA model which introduced some errors that the FEMA model does not have. The stationing of the weir no longer matched the stationing of cross section 1076. The stationing of the downstream weir was adjusted to be consistent with the upstream weir. The downstream culvert stationing was adjusted so that it is now located within the channel. The distance from the "deck" to the upstream cross section was corrected. Discharges were updated based on the results of the pre-project hydrology model. The discharges for the entire hydraulic model was reviewed and revised where deemed appropriate. The pre-project drainage area map shows the discharge locations that were applied to the hydraulic model. The MDS pre-project 100-year floodplain was mapped and shown on Exhibit 12. The maximum increase was 0.35 feet located on the upstream side of Pecan Valley Drive. This was due to correcting the discharge. The maximum decrease was 0.27 feet located upstream of Harvard Drive. This was due to correcting the discharge. The plan name is "Pre-Project".

The FEMA and MDS 100-year water surface elevations are shown on Table 5 and Table 6, respectively. The location of the cross sections are shown on Exhibit 12. The output is included as Exhibit 13. The stream profile and cross sections are included as Exhibit 14 and Exhibit 15, respectively.

3.3.Post-Project Model

The pre-project FEMA model and pre-project MDS model was modified in the same way with the exception to discharges to create the post-project model. The proposed changes to the model are as follows:

- Fill was added to cross sections 1202 to 1622. The n-value for the fill slope was changed to 0.045.
- An excavated area was added to cross sections 1422 to 1622. The purpose of this is for creating additional floodplain storage to help offset the reduction in floodplain storage caused by the fill.
- MDS only: The hydrology was updated for post-project conditions.

The post-project FEMA model showed no increases in the water surface elevations compared to the pre-project FEMA model. The maximum decrease is 0.03 feet. The plan name is "Post-Project".

The MDS post-project model showed a maximum increase was 0.02 feet located at cross section 2028. This is due to the reduction of discharge at a cross section with a depressed water surface elevation. The plan name is "Post-Project".

The FEMA and MDS 100-year water surface elevations are shown on Table 5 and Table 6, respectively. The modifications, location of the cross sections, and the FEMA and MDS proposed floodplains are shown on Exhibit 16. The output is included as Exhibit 17. The stream profile is included as Exhibit18. The cross sections are included as Exhibit 19.

The Erosion Hazard Setback is a requirement within the City. In general, it is determined by locating the toe of the channel and extending a line up at a slope of 4:1 until it daylights, plus

15 feet beyond. In this situation, there is not a well defined channel. As a result, the toe of the channel is not apparent on some of the cross sections. In this situation, the 4:1 slope is extended up from the flow line until it intersects with the fully developed 100-year floodplain. The drainage easement that contains the Erosion Hazard Setback was determined by offsetting the previously mentioned floodplain by 10 feet. This was all done in accordance to "Scenario 2 (Erosion Hazard Setback within Floodplain)" that is found in the Standards of Design and Construction for the City of Rockwall dated October 2019. The Erosion Hazard Setback and Drainage Easement are shown on Exhibits 16 and 20. The development of these are graphically shown on the Post-Project Cross Section, Exhibit 19.

3.4.Results

The hydraulic modeling results shown in Table 6 show a rise in water surface elevation at cross section 2028. The 0.02' rise is within the HOA lot. Fill elevations and finished floor elevations will be based on the proposed 100-year water surface elevations which uses fully developed discharges.

4. CONCLUSION

This study shows that this project will increase the 100-year water surface elevation which is located on the HOA lot. Permission can be obtained for this rise. Permissions will be obtained for offsite grading. We do not believe this project will hinder any potential development on properties adjacent to this development or downstream of the project.

The minimum fill elevations shall be 2 foot above the 100-year water surface elevations. The minimum finished floor elevations shall be a minimum 2' above the 100-year water surface elevations.

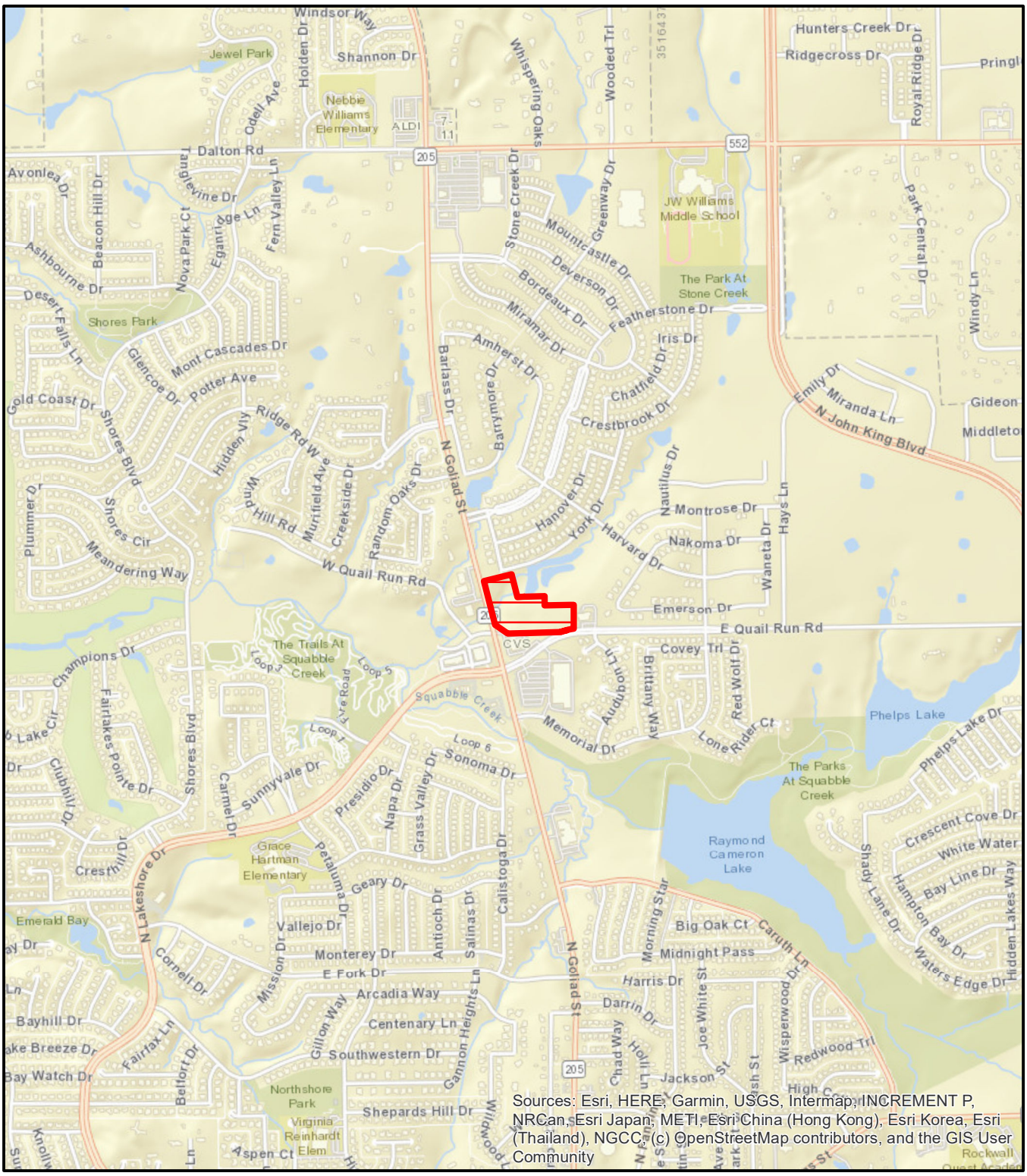
When there is sufficient grading completed a LOMR can be provided using FEMA's effective model.

TABLE 5

FEMA WATER SURFACE COMPARISON							
Effective		Pre-Project			Post-Project		
STATION	W.S. Elev.	STATION	W.S. Elev.	Difference	STATION	W.S. Elev.	Difference
1973	492.07	1973	492.07	0.00	1973	492.07	0.00
1917	491.74	1917	491.74	0.00	1917	491.74	0.00
1716	480.54	1716	480.60	0.06	1716	480.60	0.00
SITE							
1622	480.38	1622	480.38	0.00	1622	480.35	-0.03
		1563	480.36		1563	480.34	-0.02
1538	480.35						
		1513	480.35		1513	480.34	-0.01
1422	480.32	1422	480.33	0.01	1422	480.33	0.00
					1328	480.33	
1284	480.32	1284	480.32	0.00	1284	480.32	0.00
1202	480.31	1202	480.30	-0.01	1202	480.30	0.00
SITE							
N. Goliad St							
1076	474.20	1076	474.20	0.00	1076	474.20	0.00
1026	471.40	1026	471.40	0.00	1026	471.40	0.00

TABLE 6

MDS WATER SURFACE COMPARISON										
Effective			Pre-Project				Post-Project			
STATION	Q	W.S. Elev.	STATION	Q	W.S. Elev.	Difference	STATION	Q	W.S. Elev.	Difference
4830	441	521.17	4830	441	521.17	0.00	4830	441	521.17	0.00
4587	441	519.73	4587	441	519.73	0.00	4587	441	519.73	0.00
4437	386	519.73	4437	378	519.73	0.00	4437	378	519.73	0.00
Pond Culvert										
4291	386	513.12	4291	378	513.11	-0.01	4291	378	513.11	0.00
4188	386	511.11	4188	378	511.11	0.00	4188	378	511.11	0.00
3967	386	505.62	3967	378	505.59	-0.03	3967	378	505.59	0.00
3831	386	503.30	3831	378	503.29	-0.01	3831	378	503.29	0.00
3669	386	501.84	3669	386	501.84	0.00	3669	386	501.84	0.00
3525	386	500.23	3525	386	500.08	-0.15	3525	386	500.08	0.00
3310	448	498.42	3310	386	498.15	-0.27	3310	386	498.15	0.00
3134	448	496.63	3134	386	496.48	-0.15	3134	386	496.48	0.00
2997	475	494.51	2997	448	494.40	-0.11	2997	448	494.40	0.00
Harvard Dr										
2917	475	493.61	2917	448	493.56	-0.05	2917	448	493.56	0.00
2800	475	493.55	2800	448	493.54	-0.01	2800	448	493.51	-0.03
2677	475	493.09	2677	448	493.16	0.07	2677	448	493.11	-0.05
2550	475	493.09	2550	448	493.16	0.07	2550	448	493.10	-0.06
2396	472	493.04	2396	486	493.11	0.07	2396	475	493.06	-0.05
2200	472	492.92	2200	486	492.99	0.07	2200	475	492.94	-0.05
2028	472	491.59	2028	486	491.55	-0.04	2028	475	491.57	0.02
1973	472	492.06	1973	486	492.06	0.00	1973	475	492.05	-0.01
1917	472	491.74	1917	478	491.74	0.00	1917	469	491.74	0.00
1716	472	480.56	1716	478	480.55	-0.01	1716	469	480.42	-0.13
SITE										
1622	432	480.42	1622	477	480.26	-0.16	1622	474	480.01	-0.25
			1563	477	480.24		1563	474	480.00	-0.24
1538	432	480.38								
			1513	477	480.22		1513	474	479.99	-0.23
1422	432	480.36	1422	477	480.20	-0.16	1422	474	479.98	-0.22
							1328	474	479.97	
1284	432	480.35	1284	477	480.19	-0.16	1284	474	479.97	-0.22
1202	437	480.35	1202	431	480.16	-0.19	1202	423	479.94	-0.22
SITE										
N. Goliad St										
1076	437	474.19	1076	431	474.14	-0.05	1076	423	474.08	-0.06
1026	437	471.30	1026	431	471.28	-0.02	1026	423	471.25	-0.03
981	437	470.98	981	431	470.96	-0.02	981	423	470.93	-0.03
918	437	469.61	918	431	469.58	-0.03	918	423	469.55	-0.03
833	437	467.72	833	435	467.71	-0.01	833	428	467.68	-0.03
W. Quail Run Rd										
802	437	467.67	802	435	467.66	-0.01	802	428	467.64	-0.02
726	437	467.10	726	435	467.09	-0.01	726	428	467.07	-0.02
635	437	465.93	635	435	465.96	0.03	635	428	465.94	-0.02
619	437	465.27	619	435	465.47	0.20	619	428	465.45	-0.02
495	437	461.68	495	594	462.03	0.35	495	587	462.02	-0.01
Pecan Valley Dr										
393	437	461.26	393	594	461.51	0.25	393	587	461.50	-0.01



Legend

Site

STONE CREEK RETAIL

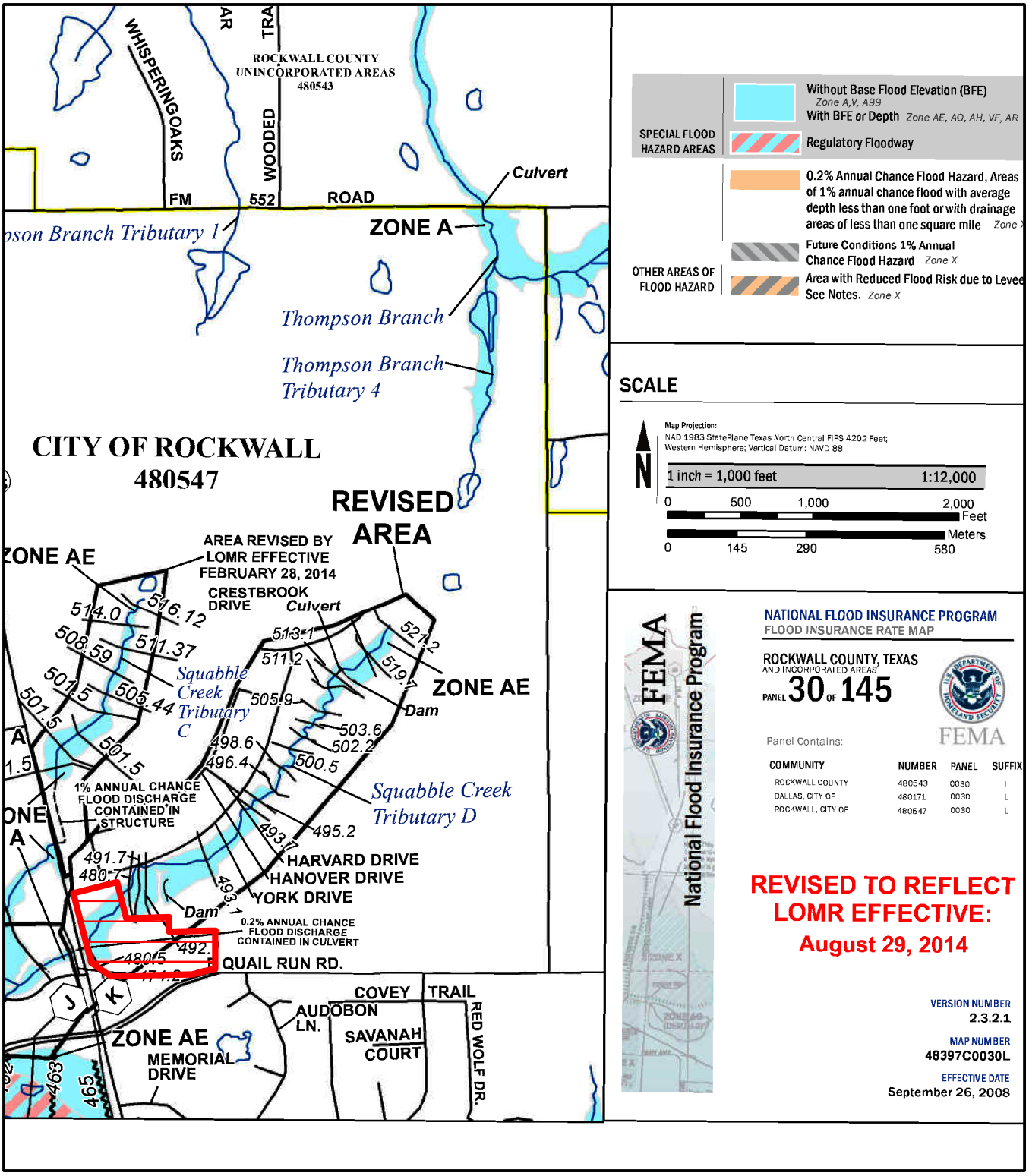
BANNISTER ENGINEERING

1 in = 0.3 miles

0 0.075 0.15 0.3 Miles

LOCATION MAP

EXHIBIT 1



Legend

Site

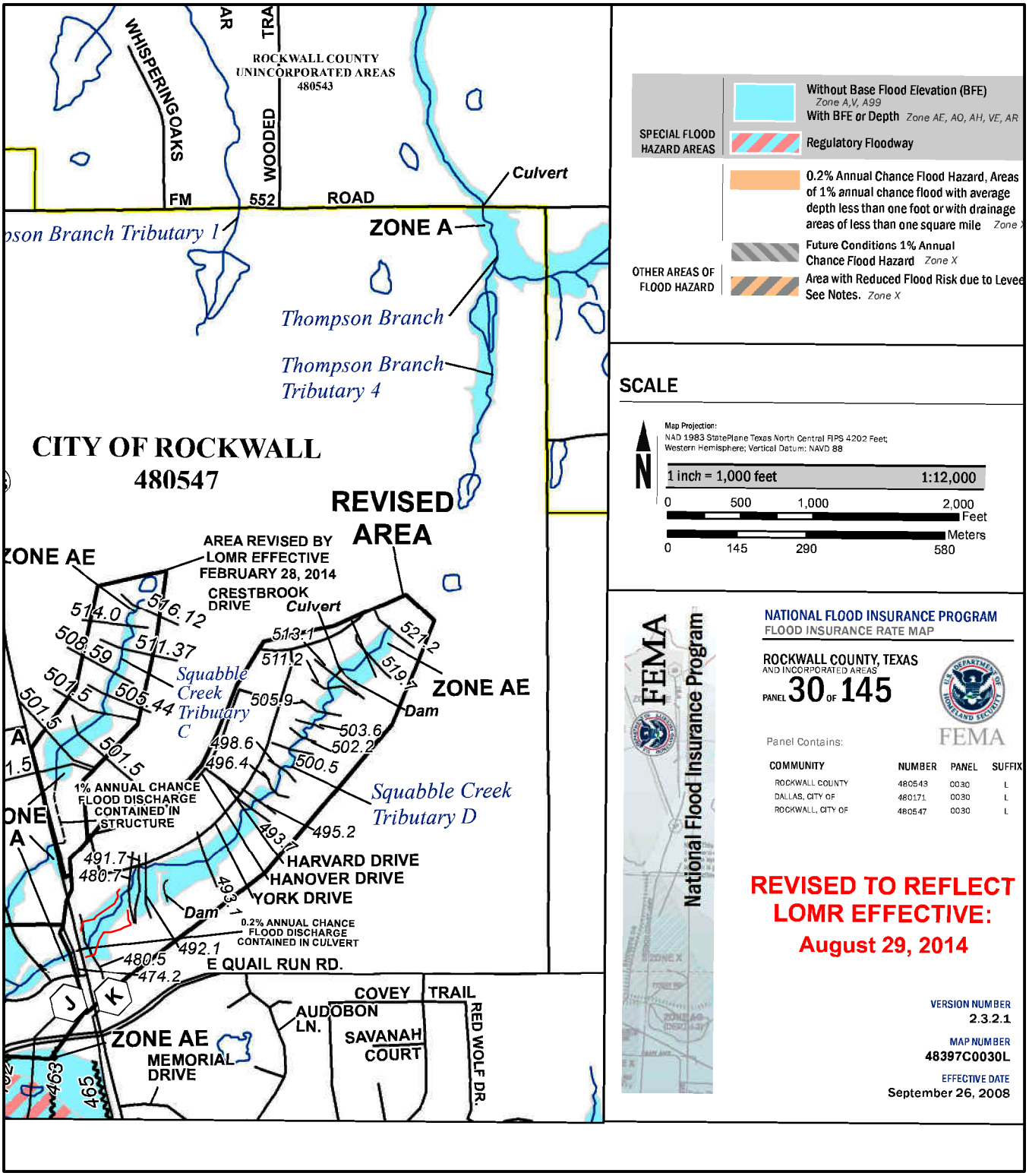
STONE CREEK RETAIL

BANNISTER ENGINEERING

1 in = 1,000 feet

0 250 500 1,000 Feet

EFFECTIVE FIRM **EXHIBIT 2**



Legend

100-YR Revised FP

STONE CREEK RETAIL

BANNISTER ENGINEERING

N

1 in = 1,000 feet

0 250 500 1,000 Feet

ANNOTATED FIRM **EXHIBIT 3**

HEC-RAS Plan: Post-Project River: RIVER-1 Reach: Reach-1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	4830	10 Year	282.80	519.35	520.87	520.87	521.29	0.025442	5.22	54.13	65.25	1.01
Reach-1	4830	50 Year	380.30	519.35	521.06	521.06	521.56	0.024427	5.65	67.39	72.18	1.02
Reach-1	4830	100 Year	428.80	519.35	521.15	521.15	521.68	0.023297	5.84	73.74	75.26	1.01
Reach-1	4830	500 Year	532.40	519.35	521.32	521.32	521.92	0.021548	6.21	87.15	81.38	0.99
Reach-1	4587	10 Year	282.80	513.00	518.86		518.87	0.000044	0.69	430.47	117.28	0.06
Reach-1	4587	50 Year	380.30	513.00	519.62		519.63	0.000047	0.78	525.32	135.41	0.06
Reach-1	4587	100 Year	428.80	513.00	519.73		519.74	0.000055	0.86	540.77	138.23	0.06
Reach-1	4587	500 Year	532.40	513.00	519.89		519.91	0.000076	1.03	563.88	142.35	0.08
Reach-1	4437	10 Year	221.00	513.00	518.87	513.47	518.87	0.000005	0.24	926.41	201.01	0.02
Reach-1	4437	50 Year	335.20	513.00	519.62	513.61	519.62	0.000008	0.31	1083.55	217.60	0.02
Reach-1	4437	100 Year	390.40	513.00	519.73	513.68	519.73	0.000010	0.35	1108.31	220.27	0.03
Reach-1	4437	500 Year	493.30	513.00	519.90	513.80	519.90	0.000014	0.43	1145.06	224.17	0.03
Reach-1	4338		Culvert									
Reach-1	4291	10 Year	272.80	510.40	512.89	512.89	513.25	0.028885	5.18	66.91	100.17	0.83
Reach-1	4291	50 Year	409.00	510.40	513.15	513.15	513.54	0.028737	5.59	95.01	113.44	0.84
Reach-1	4291	100 Year	479.10	510.40	513.25	513.25	513.66	0.029747	5.86	105.98	116.21	0.87
Reach-1	4291	500 Year	623.10	510.40	513.41	513.41	513.90	0.032533	6.42	124.98	120.85	0.92
Reach-1	4188	10 Year	272.80	508.32	510.93	510.68	511.05	0.017514	3.45	106.19	127.12	0.47
Reach-1	4188	50 Year	409.00	508.32	511.15	510.83	511.31	0.019117	3.91	134.76	130.67	0.50
Reach-1	4188	100 Year	479.10	508.32	511.24	510.92	511.42	0.020174	4.15	146.88	132.32	0.52
Reach-1	4188	500 Year	623.10	508.32	511.41	511.06	511.63	0.021960	4.57	169.63	135.38	0.55
Reach-1	3967	10 Year	272.80	501.10	505.24	505.24	505.74	0.036683	6.03	55.71	58.76	0.68
Reach-1	3967	50 Year	409.00	501.10	505.69	505.59	506.16	0.031380	6.25	85.16	73.06	0.65
Reach-1	3967	100 Year	479.10	501.10	505.89	505.74	506.34	0.028808	6.26	100.58	79.53	0.63
Reach-1	3967	500 Year	623.10	501.10	506.23		506.67	0.025430	6.31	128.62	85.54	0.60
Reach-1	3831	10 Year	272.80	498.10	502.86		503.01	0.011138	3.28	88.38	45.66	0.38
Reach-1	3831	50 Year	409.00	498.10	503.37		503.57	0.012865	3.81	114.80	55.84	0.41
Reach-1	3831	100 Year	479.10	498.10	503.58		503.81	0.013304	4.07	126.49	58.50	0.43
Reach-1	3831	500 Year	623.10	498.10	503.96		504.24	0.013766	4.51	150.16	63.54	0.44
Reach-1	3669	10 Year	272.80	496.18	501.34		501.49	0.009474	3.50	97.14	66.90	0.36

HEC-RAS Plan: Post-Project River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	3669	50 Year	409.00	496.18	501.93		502.08	0.008351	3.54	138.10	71.48	0.34
Reach-1	3669	100 Year	479.10	496.18	502.19		502.34	0.007954	3.61	156.49	74.02	0.34
Reach-1	3669	500 Year	623.10	496.18	502.64		502.81	0.007470	3.79	191.09	78.93	0.34
Reach-1	3525	10 Year	272.80	495.50	499.43		499.78	0.021679	4.75	58.19	30.05	0.56
Reach-1	3525	50 Year	409.00	495.50	500.17		500.57	0.019240	5.14	84.12	40.85	0.54
Reach-1	3525	100 Year	479.10	495.50	500.48		500.89	0.018499	5.30	97.52	46.09	0.54
Reach-1	3525	500 Year	623.10	495.50	501.03		501.46	0.017060	5.51	125.54	55.36	0.53
Reach-1	3310	10 Year	272.80	492.48	497.61		497.71	0.005232	2.53	107.87	42.71	0.28
Reach-1	3310	50 Year	409.00	492.48	498.32		498.46	0.005731	2.91	140.53	49.72	0.30
Reach-1	3310	100 Year	479.10	492.48	498.62		498.77	0.005955	3.09	155.64	53.10	0.31
Reach-1	3310	500 Year	623.10	492.48	499.13		499.31	0.006414	3.42	184.32	59.50	0.33
Reach-1	3134	10 Year	272.80	491.51	495.61		495.98	0.023895	4.98	58.90	36.49	0.58
Reach-1	3134	50 Year	409.00	491.51	496.17		496.61	0.024250	5.57	81.76	45.51	0.60
Reach-1	3134	100 Year	479.10	491.51	496.42		496.88	0.024163	5.79	93.28	49.58	0.60
Reach-1	3134	500 Year	623.10	491.51	496.87		497.37	0.023271	6.08	117.44	57.20	0.60
Reach-1	2997	10 Year	303.70	491.25	494.56		494.64	0.004711	2.37	138.05	74.88	0.27
Reach-1	2997	50 Year	452.40	491.25	495.04		495.14	0.005251	2.81	174.98	81.53	0.29
Reach-1	2997	100 Year	530.10	491.25	495.24		495.37	0.005483	3.01	192.10	84.62	0.30
Reach-1	2997	500 Year	691.20	491.25	495.56		495.72	0.006290	3.44	220.04	89.43	0.33
Reach-1	2917	10 Year	303.70	491.50	493.20	493.20	493.72	0.062827	6.20	55.28	55.23	0.91
Reach-1	2917	50 Year	452.40	491.50	493.55	493.55	494.16	0.058026	6.86	75.79	63.63	0.90
Reach-1	2917	100 Year	530.10	491.50	493.70	493.70	494.36	0.056110	7.14	86.06	67.44	0.90
Reach-1	2917	500 Year	691.20	491.50	494.20		494.75	0.036216	6.67	122.54	79.52	0.75
Reach-1	2800	10 Year	303.70	490.60	492.98		493.00	0.001201	1.24	250.40	138.69	0.16
Reach-1	2800	50 Year	452.40	490.60	493.42		493.45	0.001325	1.49	312.59	144.40	0.17
Reach-1	2800	100 Year	530.10	490.60	493.65		493.69	0.001313	1.58	347.06	147.47	0.17
Reach-1	2800	500 Year	691.20	490.60	494.14		494.18	0.001236	1.72	419.93	153.76	0.17
Reach-1	2677	10 Year	303.70	490.30	492.21	492.15	492.55	0.032671	5.55	73.29	86.01	0.78
Reach-1	2677	50 Year	452.40	490.30	492.85		493.05	0.013683	4.51	135.96	110.28	0.54
Reach-1	2677	100 Year	530.10	490.30	493.15		493.33	0.009900	4.19	171.01	119.22	0.47
Reach-1	2677	500 Year	691.20	490.30	493.74		493.88	0.005963	3.74	244.98	131.60	0.37

HEC-RAS Plan: Post-Project River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	2550	10 Year	303.70	489.63	492.32		492.34	0.000270	1.16	303.29	144.05	0.13
Reach-1	2550	50 Year	452.40	489.63	492.86		492.89	0.000305	1.39	384.05	155.11	0.14
Reach-1	2550	100 Year	530.10	489.63	493.14		493.17	0.000306	1.48	429.02	161.23	0.14
Reach-1	2550	500 Year	691.20	489.63	493.72		493.75	0.000297	1.61	525.05	174.12	0.14
Reach-1	2396	10 Year	270.70	489.63	492.28		492.30	0.000248	1.05	270.77	124.71	0.12
Reach-1	2396	50 Year	416.40	489.63	492.81		492.84	0.000306	1.31	339.70	134.32	0.14
Reach-1	2396	100 Year	484.70	489.63	493.10		493.13	0.000303	1.38	382.92	227.01	0.14
Reach-1	2396	500 Year	628.80	489.63	493.68		493.71	0.000268	1.45	517.24	237.64	0.13
Reach-1	2200	10 Year	270.70	489.63	492.19		492.23	0.000539	1.49	183.10	82.84	0.17
Reach-1	2200	50 Year	416.40	489.63	492.70		492.75	0.000670	1.87	225.78	86.47	0.20
Reach-1	2200	100 Year	484.70	489.63	492.98		493.04	0.000663	1.97	250.48	88.51	0.20
Reach-1	2200	500 Year	628.80	489.63	493.56		493.63	0.000616	2.11	326.36	240.58	0.20
Reach-1	2028	10 Year	270.70	487.50	491.66		491.96	0.013208	4.35	62.34	28.40	0.52
Reach-1	2028	50 Year	416.40	487.50	491.65		492.35	0.031961	6.74	61.86	28.33	0.80
Reach-1	2028	100 Year	484.70	487.50	491.58	491.54	492.60	0.047555	8.09	59.92	28.06	0.98
Reach-1	2028	500 Year	628.80	487.50	491.96	491.96	493.18	0.049168	8.89	70.78	29.53	1.01
Reach-1	1973	10 Year	270.70	488.58	491.81		491.81	0.000014	0.30	908.58	290.49	0.03
Reach-1	1973	50 Year	416.40	488.58	491.99		491.99	0.000028	0.44	961.51	291.76	0.04
Reach-1	1973	100 Year	484.70	488.58	492.07		492.08	0.000034	0.50	986.86	292.53	0.05
Reach-1	1973	500 Year	628.80	488.58	492.21		492.22	0.000051	0.62	1027.78	293.77	0.06
Reach-1	1917	10 Year	270.70	489.00	491.58	491.58	491.78	0.026535	5.28	98.52	218.46	0.74
Reach-1	1917	50 Year	416.40	489.00	491.72	491.72	491.96	0.029801	5.93	131.47	239.74	0.80
Reach-1	1917	100 Year	484.70	489.00	491.74	491.74	492.04	0.037775	6.71	134.85	241.82	0.90
Reach-1	1917	500 Year	628.80	489.00	491.90	491.90	492.18	0.033371	6.69	177.20	287.74	0.86
Reach-1	1716	10 Year	270.70	478.80	479.89		480.01	0.021283	2.73	99.12	119.64	0.53
Reach-1	1716	50 Year	416.40	478.80	479.89		480.16	0.051125	4.22	98.62	119.47	0.82
Reach-1	1716	100 Year	484.70	478.80	480.54		480.65	0.009738	2.68	183.69	140.09	0.39
Reach-1	1716	500 Year	628.80	478.80	481.81		481.85	0.001752	1.73	383.86	173.48	0.18
Reach-1	1622	10 Year	279.70	476.05	478.09		478.26	0.017709	3.55	93.08	92.02	0.50
Reach-1	1622	50 Year	391.30	476.05	479.28		479.34	0.003122	2.17	216.48	114.51	0.23

HEC-RAS Plan: Post-Project River: RIVER-1 Reach: Reach-1 (Continued)

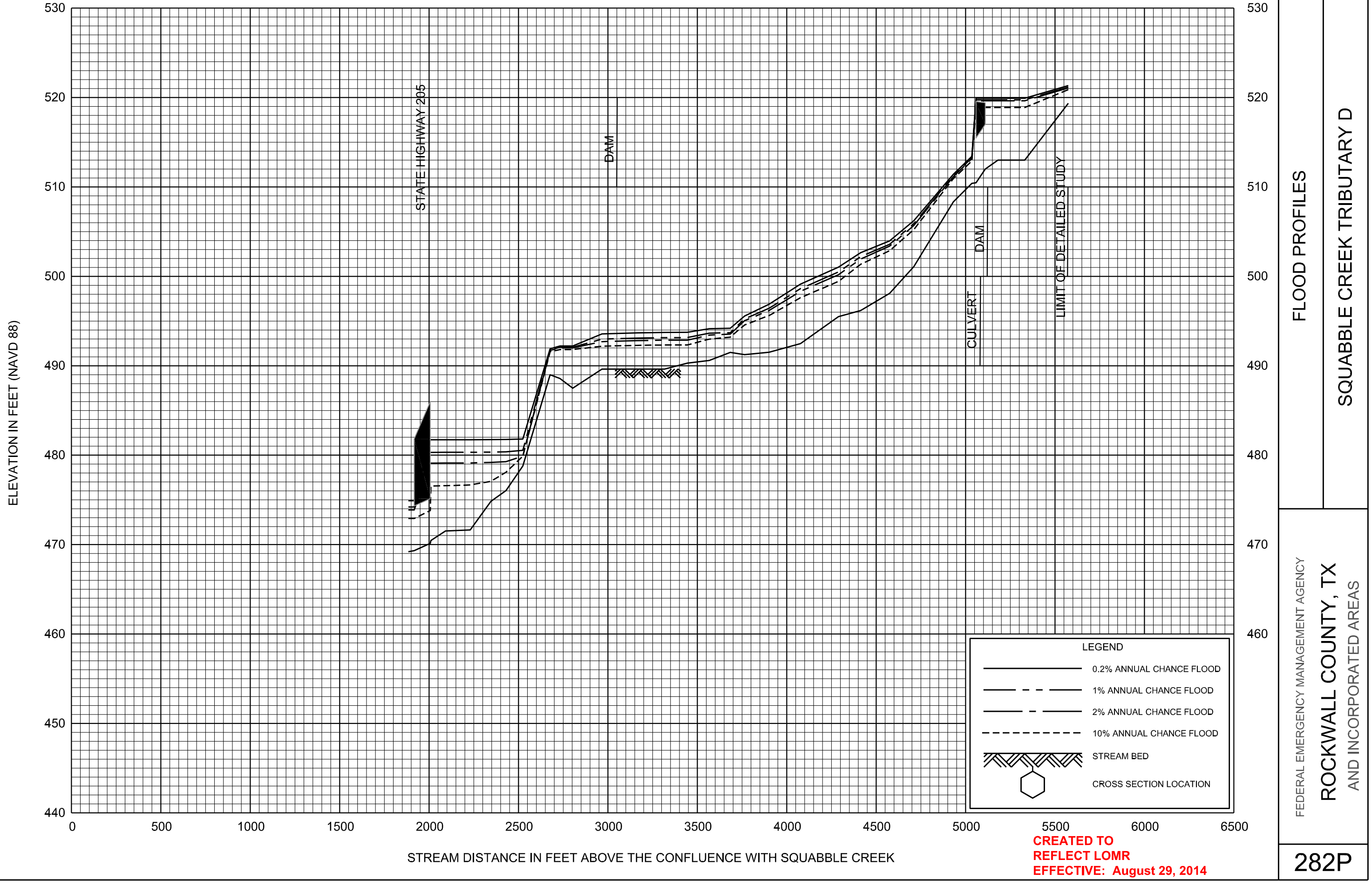
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1622	100 Year	435.70	476.05	480.38		480.41	0.000947	1.50	353.53	133.91	0.13
Reach-1	1622	500 Year	551.50	476.05	481.76		481.77	0.000428	1.23	554.14	158.60	0.10
Reach-1	1538	10 Year	279.70	474.84	477.08		477.18	0.009658	2.72	110.16	84.08	0.37
Reach-1	1538	50 Year	391.30	474.84	479.19		479.21	0.000823	1.38	332.09	125.80	0.12
Reach-1	1538	100 Year	435.70	474.84	480.35		480.36	0.000348	1.07	493.66	152.35	0.08
Reach-1	1538	500 Year	551.50	474.84	481.74		481.75	0.000198	0.95	727.64	184.29	0.07
Reach-1	1422	10 Year	279.70	471.64	476.67		476.73	0.002026	2.15	169.20	82.82	0.19
Reach-1	1422	50 Year	391.30	471.64	479.13		479.15	0.000345	1.23	443.99	135.35	0.09
Reach-1	1422	100 Year	435.70	471.64	480.32		480.33	0.000178	0.99	617.27	155.40	0.06
Reach-1	1422	500 Year	551.50	471.64	481.72		481.73	0.000119	0.91	849.01	175.48	0.05
Reach-1	1284	10 Year	279.70	471.53	476.59		476.61	0.000450	1.11	331.31	134.93	0.09
Reach-1	1284	50 Year	391.30	471.53	479.12		479.12	0.000102	0.72	760.09	204.11	0.05
Reach-1	1284	100 Year	435.70	471.53	480.32		480.32	0.000057	0.60	1022.94	234.16	0.04
Reach-1	1284	500 Year	551.50	471.53	481.72		481.72	0.000042	0.57	1373.05	265.81	0.03
Reach-1	1202	10 Year	279.70	470.45	476.55	473.53	476.57	0.000355	1.40	341.29	174.16	0.11
Reach-1	1202	50 Year	391.30	470.45	479.11	473.89	479.12	0.000060	0.74	916.62	263.73	0.05
Reach-1	1202	100 Year	435.70	470.45	480.31	474.00	480.32	0.000031	0.59	1250.20	290.97	0.03
Reach-1	1202	500 Year	551.50	470.45	481.72	474.27	481.72	0.000022	0.54	1676.91	318.31	0.03
Reach-1	1119.5		Culvert									
Reach-1	1076	10 Year	282.00	469.20	472.93	472.93	474.78	0.023479	10.91	25.85	87.56	1.00
Reach-1	1076	50 Year	395.80	469.20	473.87	473.87	476.19	0.021797	12.22	32.39	128.13	1.00
Reach-1	1076	100 Year	440.80	469.20	474.20	474.20	476.71	0.021461	12.70	34.72	140.97	1.00
Reach-1	1076	500 Year	555.70	469.20	474.90	474.90	475.09	0.002633	4.85	190.24	165.71	0.36
Reach-1	1026	10 Year	282.00	465.90	471.01		471.06	0.000698	1.99	181.74	85.91	0.17
Reach-1	1026	50 Year	395.80	465.90	471.24		471.32	0.001080	2.56	202.38	93.46	0.22
Reach-1	1026	100 Year	440.80	465.90	471.40		471.49	0.001136	2.69	217.83	98.73	0.22
Reach-1	1026	500 Year	555.70	465.90	471.51		471.65	0.001612	3.26	229.14	102.43	0.27
Reach-1	981	10 Year	282.00	465.70	470.99		471.03	0.000553	1.85	200.66	97.08	0.16
Reach-1	981	50 Year	395.80	465.70	471.20		471.28	0.000872	2.40	222.73	105.91	0.20
Reach-1	981	100 Year	440.80	465.70	471.36		471.44	0.000921	2.52	240.09	112.38	0.20

HEC-RAS Plan: Post-Project River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	981	500 Year	555.70	465.70	471.46		471.58	0.001331	3.07	251.04	116.27	0.25
Reach-1	918	10 Year	282.00	465.30	470.98		471.00	0.000248	1.24	310.87	138.11	0.10
Reach-1	918	50 Year	395.80	465.30	471.20		471.23	0.000390	1.61	341.55	145.46	0.13
Reach-1	918	100 Year	440.80	465.30	471.36		471.39	0.000411	1.69	365.21	150.88	0.14
Reach-1	918	500 Year	555.70	465.30	471.45		471.50	0.000595	2.06	379.59	154.08	0.17
Reach-1	833	10 Year	282.00	464.10	470.97	468.82	470.98	0.000154	1.01	445.86	201.91	0.07
Reach-1	833	50 Year	395.80	464.10	471.18	469.99	471.19	0.000276	1.38	489.21	211.73	0.09
Reach-1	833	100 Year	440.80	464.10	471.34	470.27	471.35	0.000286	1.43	523.46	217.95	0.09
Reach-1	833	500 Year	555.70	464.10	471.43	470.27	471.45	0.000414	1.73	542.53	221.34	0.11
Reach-1	817.5		Culvert									
Reach-1	802	10 Year	282.00	463.92	467.34	466.81	467.44	0.005690	3.52	134.62	107.33	0.34
Reach-1	802	50 Year	395.80	463.92	467.74	466.81	467.85	0.005549	3.76	182.16	128.59	0.34
Reach-1	802	100 Year	440.80	463.92	467.88	466.82	467.99	0.005497	3.83	200.36	135.85	0.35
Reach-1	802	500 Year	555.70	463.92	468.18	467.06	468.29	0.005376	3.99	243.25	146.09	0.35
Reach-1	726	10 Year	282.00	463.60	466.81		466.93	0.008483	2.84	107.79	76.39	0.34
Reach-1	726	50 Year	395.80	463.60	467.17		467.32	0.008976	3.24	138.43	91.08	0.36
Reach-1	726	100 Year	440.80	463.60	467.30		467.46	0.009085	3.37	150.37	96.20	0.37
Reach-1	726	500 Year	555.70	463.60	467.56		467.75	0.009732	3.71	176.62	106.60	0.38
Reach-1	635	10 Year	282.00	462.00	464.69	464.69	465.28	0.055775	6.34	49.72	48.27	0.84
Reach-1	635	50 Year	395.80	462.00	465.06	465.06	465.67	0.048502	6.71	69.95	61.60	0.81
Reach-1	635	100 Year	440.80	462.00	465.18	465.18	465.81	0.047404	6.87	77.23	65.74	0.81
Reach-1	635	500 Year	555.70	462.00	465.48	465.45	466.10	0.041128	6.97	99.15	76.87	0.77
Reach-1	619	10 Year	282.00	460.00	464.25		464.55	0.018752	4.45	64.29	35.08	0.50
Reach-1	619	50 Year	395.80	460.00	464.66		465.07	0.020718	5.19	82.06	50.78	0.54
Reach-1	619	100 Year	440.80	460.00	464.80		465.24	0.021169	5.42	89.57	56.11	0.55
Reach-1	619	500 Year	555.70	460.00	465.11		465.61	0.022059	5.90	108.69	67.81	0.57
Reach-1	495	10 Year	282.00	458.30	462.20		462.37	0.016112	3.28	86.59	60.43	0.45
Reach-1	495	50 Year	395.80	458.30	462.56		462.77	0.015970	3.72	111.07	76.60	0.46
Reach-1	495	100 Year	440.80	458.30	462.67		462.90	0.016008	3.87	120.53	82.00	0.47
Reach-1	495	500 Year	555.70	458.30	462.94		463.20	0.016084	4.20	144.27	94.20	0.48

HEC-RAS Plan: Post-Project River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	393	10 Year	282.00	456.95	460.91	459.87	461.07	0.010542	3.50	103.01	95.31	0.39
Reach-1	393	50 Year	395.80	456.95	461.17	460.61	461.37	0.012367	4.04	129.30	106.93	0.42
Reach-1	393	100 Year	440.80	456.95	461.26	460.74	461.48	0.012933	4.22	139.10	110.95	0.44
Reach-1	393	500 Year	555.70	456.95	461.45	460.94	461.71	0.014548	4.67	160.99	119.45	0.47



CREATED TO REFLECT LOMR EFFECTIVE: August 29, 2014

FLOOD PROFILES

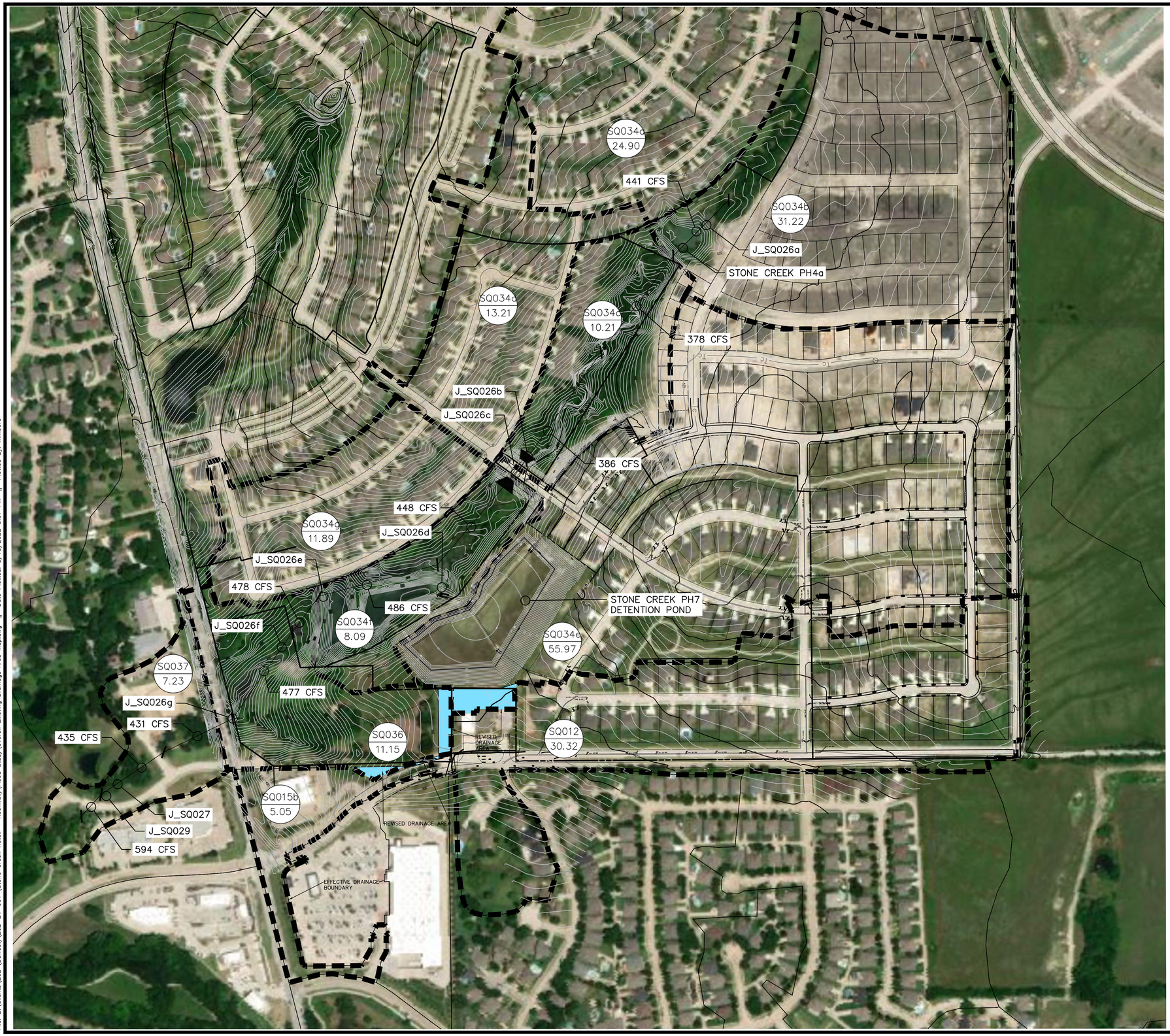
SQUABBLE CREEK TRIBUTARY D

FEDERAL EMERGENCY MANAGEMENT AGENCY

ROCKWALL COUNTY, TX

AND INCORPORATED AREAS

282P



N

GRAPHIC SCALE

200 0 100 200 400

(IN FEET)
1 inch = 200 ft.

LEGEND

118	EXISTING CONTOUR
Tc	TIME OF CONCENTRATION
Tc	FLOW TYPE CHANGE
	DISCHARGE SEGMENT
	AREA DIVIDE
AREA DA-X ACRES 1.00	DRAINAGE AREA LABEL

MDS REVISED SUBBASINS

1. SQ012
2. SQ015b
3. SQ034e
4. SQ034f
5. SQ036 (SITE)

BENCHMARKS

BM#1:
CITY OF ROCKWALL MONUMENT 14

NAVD88
ELEV.=497.13

BANNISTER ENGINEERING
240 North Mitchell Road | Mansfield, TX 76063| 817.842.2094| 817.842.2095 fax
REGISTRATION # F-10599 (TEXAS)

STONE CREEK RETAIL

ROCKWALL, TEXAS

OVERALL EXISTING DRAINAGE AREA MAP

No.	Date	Revision Description

PROJECT NO.: 262-21-001

STATE OF TEXAS
MICHAEL J. MOORE
128498
LICENSED
PROFESSIONAL ENGINEER

3/15/2022

SHEET NUMBER

6

File: B:\Clients\262 (DuWest)\262-21-001 (Stone Creek Retail - Rockwall)\Flood Study\Overall Existing Drainage Area Map.dwg | Date Plotted: 3/15/2022 3:07 PM | Plotted By: mmoore

SCS TIME OF CONCENTRATION CALCULATIONS

EXISTING SCS Tc CALCULATIONS FOR AREA SQ034e

TYPE	CONDITION	DIST	UP ELEV	DOWN ELEV	SLOPE	Coeff.	P_2	VELOCITY	TIME (MIN)
SHEET	GRASS	28	541.3	540.8	1.8%	0.24	4.09	0.10	4.8
SHALLOW	GRASS	126	540.8	539.4	1.1%	16.13		1.70	1.2
SHALLOW	PAVE	480	538.9	535.19	0.8%	20.33		1.79	4.5
PIPE	PAVE	1913						10.4	3.1
								TOTAL	13.5

SCS CALCULATION REFERENCES

Sheet Flow

Sheet flow can be calculated using the following formula:

$$T_t = \frac{0.42\,(nL)^{0.8}}{60\,(P_2)^{0.5}(S)^{0.4}} = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5}(S)^{0.4}} \qquad (1.10)$$

where:

T_t = travel time (hr)
n = Manning roughness coefficient (see Table 1.10)
L = flow length (ft),
P_2 = 2-year, 24-hour rainfall
S = land slope (ft/ft)

Table 1.10 Roughness Coefficients (Manning's n) for Sheet Flow[1]

Surface Description	n
Smooth surfaces	
(concrete, asphalt, gravel or bare soil)	0.011
Fallow	
(no residue)	0.05
Cultivated soils:	
Residue cover < 20%	0.06
Residue cover > 20%	0.17
Grass:	
Short grass prairie	0.15
Dense grasses[2]	0.24
Bermuda grass	0.41
Range	
(natural)	0.13
Woods[3]	
Light underbrush	0.40
Dense underbrush	0.80

[1] The n values are a composite of information by Engman (1986).
[2] Includes species such as bluestem grass, buffalo grass, grama grass, and native grass mixtures.
[3] When selecting n, consider cover to a height of about 0.1 ft. This is the only part of the plant cover that will obstruct sheet flow.
Source: SCS, TR-55, Second Edition, June 1986.

NOTE: REFERENCED SHEET FLOW EQUATION CALCULATES Tc IN HOURS. THE EQUATION USED WAS MODIFIED TO CALCULATE Tc IN MINUTES

VELOCITY SHALLOW FLOW EQUATION

Unpaved $V = 16.13(S)^{0.5}$
Paved $V = 20.33(S)^{0.5}$

where:
V = average velocity (ft/s)
S = slope of hydraulic grade line (watercourse slope, ft/ft)

PHASE 7 STONE CREEK DETENTION POND

POND VOLUME CALCULATIONS

ELEVATION	AREA	VOLUME	TOTAL VOLUME
(ft)	(sf)	(cu.ft.)	(cu.ft.)
493	0	0	0
494	19,559	9,780	9,780
494.5	44,932	16,123	25,902
495	71,048	28,995	54,897
495.5	90,653	40,425	95,323
496	104,477	48,783	144,105
496.5	116,529	55,252	199,357
497	119,958	59,122	258,478
498	128,248	124,103	382,581
499	136,734	132,491	515,072
500	145,415	141,075	656,147
501	154,292	149,854	806,000
502	163,365	158,829	964,829

ROUTING TABLES

1622-1917 R_SQ015e	
Volume (ac-ft)	Discharge (cfs)
0.16	50
0.27	100
0.35	150
0.42	200
0.49	250
0.54	300
0.58	350
0.66	400
1.13	450
2.02	500
2.63	600
3.34	650
3.60	700

1202-1622 R_SQ015f	
Volume (ac-ft)	Discharge (cfs)
0.24	50
0.45	100
0.75	150
1.17	200
1.70	250
2.42	300
3.72	350
5.44	400
7.74	450
10.71	500
12.60	600
14.86	650

BY:
DATE:
CK'D:
DATE:
LOSS RATE METHOD
STREAM ROUTING

COMPUTATION SUMMARY SHEET
HYDROLOGY BY UNIT HYDROGRAPH METHOD

SHEET 1 OF 1
SUBWATERSHED
MAJOR WATERSHED
JOB/FILE NO.:

ANALYSIS POINT	SUBWATERSHED AREA (SQ.MI.)	WATERSHED AREA (SQ.MI.)	UNIT HYDROGRAPH COEFFICIENTS: SCS METHOD C_N	Lag (MIN)	SNYDER'S METHOD C_P	T_P (HR)	PEAK DISCHARGES (CFS): Q_5	Q_{10}	Q_{25}	Q_{100}	COMMENTS
MDS											
SQ012	0.04874	0.04874	94.40	18.7						169.0	
SQ015b	0.00804	0.00804	96.88	10						35.2	
SQ034a	0.03900	0.03900	95.64	4.28						203.9	
SQ034b	0.04860	0.04860	95.35	6.19						236.7	
SQ034c	0.01730	0.01730	88.93	5.43						83.9	
SQ034d	0.02050	0.02050	96.35	5.38						103.9	
SQ034e	0.08520	0.08520	95.46	9.10						380.9	
SQ034f	0.01480	0.01480	87.10	6.47						67.8	
SQ034g	0.01840	0.01840	94.81	5.49						92.4	
SQ036	0.01670	0.01670	92.71	4.12						86.4	Site
Stone Creek Phase 7		0.08520								130.3	
R_SQ015e		0.22540								457.0	
R_SQ015f		0.24380								421.6	
J_SQ008		0.14576								509.7	
J_SQ009		0.16226								531.5	
J_SQ010		4.88640								1125.5	
J_SQ021		5.44221								2377.7	
J_SQ023		5.45421								2429.2	
J_SQ024		5.48127								2425.0	
J_SQ025		5.56291								2680.3	
J_SQ026a		0.08760								440.7	
J_SQ026b		0.10490								385.8	
J_SQ026c		0.12540								447.8	
J_SQ026d		0.21060								475.0	
J_SQ026e		0.22540								474.1	
J_SQ026f		0.24380								472.4	
J_SQ026g		0.26050								431.5	
J_SQ027		0.27250								436.5	
J_SQ029		0.42610								595.5	
J_SQ030		5.98901								3206.7	
J_SQ031		6.08258								2776.8	
J_SQ034		6.26310								3032.3	
J_SQ035		6.28927								2999.3	
J_SQ037		6.40495								3006.3	
J_SQ039		6.50460								3080.6	
J_SQ040		6.76805								3188.2	
J_SQ041		7.03088								3529.5	
PRE-PROJECT											
SQ012	0.04738	0.04738	94.4	18.7						164.3	
SQ015b	0.00789	0.00789	96.8	10						34.5	
SQ034a	0.03900	0.03900	95.64	4.28						203.9	
SQ034b	0.04860	0.04860	95.35	6.19						236.7	
SQ034c	0.01730	0.01730	88.93	5.43						83.9	
SQ034d	0.02050	0.02050	96.35	5.38						103.9	
SQ034e	0.08745	0.08745	94.2	9.10						403.8	
SQ034f	0.01264	0.01264	79.1	6.47						52.9	
SQ034g	0.01840	0.01840	94.81	5.49						92.4	
SQ036	0.01742	0.01742	86.6	7.4						77.8	Proposed site.
Stone Creek Phase 7		0.08745								136.3	
R_SQ015e		0.22550								460.7	
R_SQ015f		0.24390								419.5	
J_SQ008		0.14440								508.9	
J_SQ009		0.16090								530.7	
J_SQ010		4.88504								1125.2	
J_SQ021		5.44070								2376.1	
J_SQ023		5.45270								2427.6	
J_SQ024		5.47976								2423.0	
J_SQ025		5.56140								2678.2	
J_SQ026a		0.08760								440.7	
J_SQ026b		0.10490								385.8	
J_SQ026c		0.12540								447.8	
J_SQ026d		0.21285								486.0	
J_SQ026e		0.22550								477.9	
J_SQ026f		0.24390								477.1	
J_SQ026g		0.26131								430.7	
J_SQ027		0.27331								435.4	
J_SQ029		0.42691								594.4	
J_SQ030		5.98831								3206.1	
J_SQ031		6.08188								2770.9	
J_SQ034		6.26240								3023.6	
J_SQ035		6.28857								2992.0	
J_SQ037		6.40425								2997.4	
J_SQ039		6.50390								3071.6	
J_SQ040		6.76735								3185.4	
J_SQ041		7.03018								3525.4	

MDS/PRE-PROJECT 100-YEAR DISCHARGE SUMMARY

MDS		PRE-PROJECT		
DESIGN POINT	DISCHARGE (cfs)	DESIGN POINT	DISCHARGE (cfs)	DIFFERENCE (cfs)
SQ012	169.0	SQ012	164.3	-4.7
SQ015b	35.2	SQ015b	34.5	-0.7
SQ034a	203.9	SQ034a	203.9	0.0
SQ034b	236.7	SQ034b	236.7	0.0
SQ034c	83.9	SQ034c	83.9	0.0
SQ034d	103.9	SQ034d	103.9	0.0
SQ034e	380.9	SQ034e	403.8	22.9
SQ034f	67.8	SQ034f	52.9	-14.9
SQ034g	92.4	SQ034g	92.4	0.0
SQ036	86.4	SQ036	77.8	-8.6
Stone Creek Phase 7	130.3	Stone Creek Phase 7	136.3	6.0
J_SQ008	509.7	J_SQ008	508.9	-0.8
J_SQ009	531.5	J_SQ009	530.7	-0.8
J_SQ010	1125.5	J_SQ010	1125.2	-0.3
J_SQ021	2377.7	J_SQ021	2376.1	-1.6
J_SQ023	2429.2	J_SQ023	2427.6	-1.6
J_SQ024	2425.0	J_SQ024	2423.0	-2.0
J_SQ025	2680.3	J_SQ025	2678.2	-2.1
J_SQ026c	447.8	J_SQ026c	447.8	0.0
J_SQ026d	475.0	J_SQ026d	486.0	11.0
J_SQ026e	474.1	J_SQ026e	477.9	3.8
J_SQ026f	472.4	J_SQ026f	477.1	4.7
J_SQ026g	431.5	J_SQ026g	430.7	-0.8
J_SQ027	436.5	J_SQ027	435.4	-1.1
J_SQ029	595.5	J_SQ029	594.4	-1.1
J_SQ030	3206.7	J_SQ030	3206.1	-0.6
J_SQ031	2776.8	J_SQ031	2770.9	-5.9
J_SQ034	3032.3	J_SQ034	3023.6	-8.7
J_SQ035	2999.3	J_SQ035	2992.0	-7.3
J_SQ037	3006.3	J_SQ037	2997.4	-8.9
J_SQ039	3080.6	J_SQ039	3071.6	-9.0
J_SQ040	3188.2	J_SQ040	3185.4	-2.8

SCS CURVE NUMBER CALCULATIONS

EXISTING CN CALCULATIONS

BASIN	LAND USE	AREA	SOIL GROUP	AREA	CN	%	CN*%
SQ036	OPEN SPACE (Good)	9.19	B	4.95	61	44.4%	27.1
			D	4.24	80	38.0%	30.4
	PAVED STREET	1.09	B	0.64	89	5.7%	5.1
			D	0.45	93	4.0%	3.7
	COMMERCIAL	0.87	B	0.28	92	2.6%	2.4
			D	0.59	95	5.3%	5.0
	TOTAL	11.15		11.15		**TOTAL**	**73.7**
SQ012	OPEN SPACE (Good)	2.28	B	1.63	61	5.4%	3.3
			D	0.65	80	2.1%	1.7
	OPEN SPACE (Fair)	1.36	B	0.00	69	0.0%	0.0
			D	1.36	84	4.5%	3.8
	PAVED STREET	10.33	B	0.31	89	1.0%	0.9
			D	10.02	93	33.0%	30.7
	COMMERCIAL	0.84	B	0.00	92	0.0%	0.0
			D	0.84	95	2.8%	2.6
	RES 1/8 ACRE	4.32	B	0.00	87	0.0%	0.0
			D	4.32	93	14.2%	13.3
	RES 1/4 ACRE	8.46	B	1.40	78	4.6%	3.6
			D	7.06	88	23.3%	20.5
	RES 1/3 ACRE	1.95	B	0.57	75	1.9%	1.4
			D	1.38	87	4.5%	4.0
	RES 1/2 ACRE	0.80	B	0.00	75	0.0%	0.0
			D	0.80	87	2.6%	2.3
	TOTAL	30.32		30.32		**TOTAL**	**88.0**
SQ034e	OPEN SPACE (Good)	6.36	B	2.91	61	5.2%	3.2
			D	3.45	80	6.2%	4.9
	OPEN SPACE (Fair)	4.98	B	0.01	69	0.0%	0.0
			D	4.97	84	8.9%	7.5
	PAVED STREET	9.85	B	1.21	89	2.2%	1.9
			D	8.64	93	15.4%	14.4
	COMMERCIAL	0.52	B	0.00	92	0.0%	0.0
			D	0.52	95	0.9%	0.9
	RES 1/8 ACRE	18.76	B	0.62	87	1.1%	1.0
			D	18.14	93	32.4%	30.1
	RES 1/4 ACRE	14.21	B	2.89	78	5.2%	4.0
			D	11.32	88	20.2%	17.8
	RES 1/3 ACRE	1.12	B	0.00	75	0.0%	0.0
			D	1.12	87	2.0%	1.7
	RES 1/2 ACRE	0.17	B	0.00	75	0.0%	0.0
			D	0.17	87	0.3%	0.3
	TOTAL	55.97		55.97		**TOTAL**	**87.7**

EXISTING CN CALCULATIONS

SQ034f	OPEN SPACE (Good)	7.98	B	7.60	61	93.9%	57.3
			D	0.38	80	4.7%	3.8
	PAVED STREET	0.07	B	0.05	89	0.6%	0.6
			D	0.02	93	0.3%	0.3
	RES 1/4 ACRE	0.04	B	0.04	78	0.5%	0.4
			D	0.00	88	0.0%	0.0
	TOTAL	8.09		8.09		**TOTAL**	**62.2**
SQ015b	OPEN SPACE (Good)	1.98	B	0.99	89	19.6%	17.5
			D	0.99	93	19.6%	18.2
	COMMERCIAL	3.07	B	0.71	92	14.1%	13.0
			D	2.35	95	46.6%	44.3
	TOTAL	5.05		5.05		**TOTAL**	**93.0**

Cover Type	Cover Description	Land Use Code	A	B	C	D	W
Cultivated land	w/o conservation treatment	1	72	81	88	91	100
	w/ conservation treatment	2	62	71	78	81	100
Pasture	poor	3	68	79	86	89	100
	good	4	39	61	74	80	100
Open Space	good	5	39	61	74	80	100
Brush	good	6	30	48	65	73	100
Forest land	thin stand, poor cover	7	45	66	77	83	100
	good cover	8	30	55	70	77	100
Open space (lawns, parks, golf courses, cemeteries)	poor (grass cover < 50%)	9	68	79	86	89	100
	fair (grass cover 50% to 75%)*	10	49	69	79	84	100
	good (grass cover > 75%)	11	39	61	74	80	100
Impervious areas	Paved; excluding R.O.W	12	98	98	98	98	100
	Paved; open ditches + R.O.W.*	13	83	89	92	93	100
	Gravel + R.O.W.	14	76	85	89	91	100
	Dirt + R.O.W.	15	72	82	87	89	100
Urban districts	Commercial and business 85%IMP*	16	89	92	94	95	100
	Industrial 72% IMP	17	81	88	91	93	100
Residential	1/8 ac or less 65%IMP*	18	80	87	91	93	100
	1/4 ac 38%IMP*	19	66	78	85	88	100
	1/3 ac 30%IMP*	20	60	75	83	87	100
	1/2 ac 25%IMP*	21	60	75	83	87	100
	1 ac 20%IMP*	22	59	74	82	86	100
	2 ac 12%IMP	23	46	65	77	82	100

*iSWM CN checked and revised to match Rockwall CN.

CN SUMMARY

BASIN	AREA	%	CN
SQ036	11.15	1.00	73.7
AMC-3			86.6
SQ012	30.32	1.00	88.0
AMC-3			94.4
SQ034e	55.97	1.00	87.7
AMC-3			94.2
SQ034f	8.09	1.00	62.2
AMC-3			79.1
SQ015b	5.05	1.00	93.0
AMC-3			96.8

BANNISTER ENGINEERING
240 North Mitchell Road | Mansfield, TX 76063| 817.842.2094| 817.842.2095 fax
REGISTRATION # F-10599 (TEXAS)

STONE CREEK RETAIL
ROCKWALL, TEXAS

OVERALL EXISTING DRAINAGE AREA CALCULATIONS

No.	Date	Revision Description

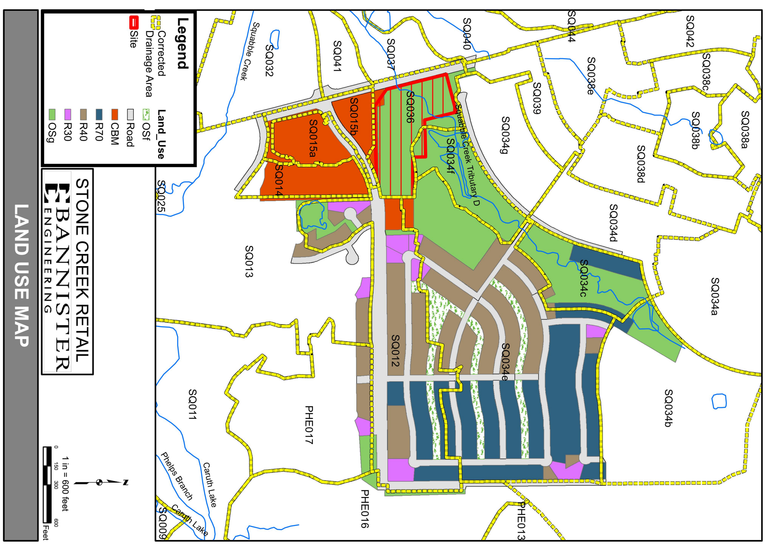
PROJECT NO.: 262-21-001

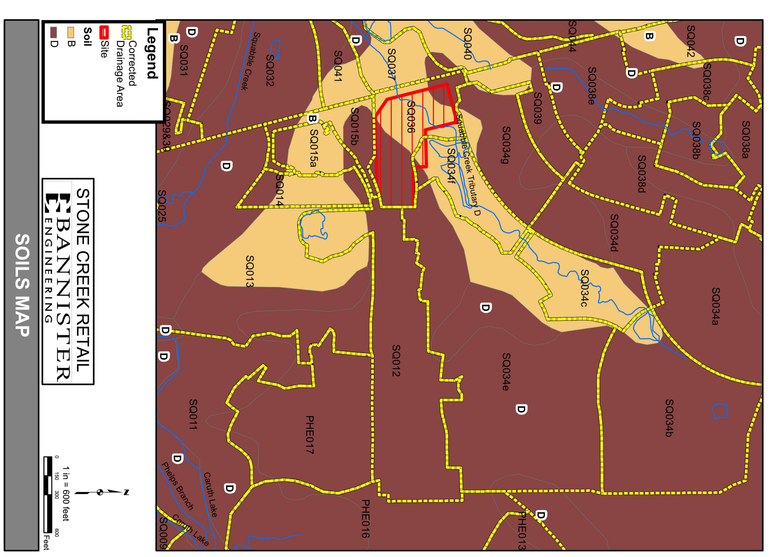
STATE OF TEXAS
MICHAEL J. MOORE
128498
LICENSED
PROFESSIONAL ENGINEER

3/15/2022

SHEET NUMBER
7

File: B:\Clients\262 (DuWest)\262-21-001 (Stone Creek Retail - Rockwall)\Flood Study\Overall Existing Drainage Area Map.dwg || Date Plotted: 3/15/2022 3:13 PM || Plotted By: mmoore





No.	Date	Revision Description

PROJECT NO.: 262-21-001

STONE CREEK RETAIL

ROCKWALL, TEXAS

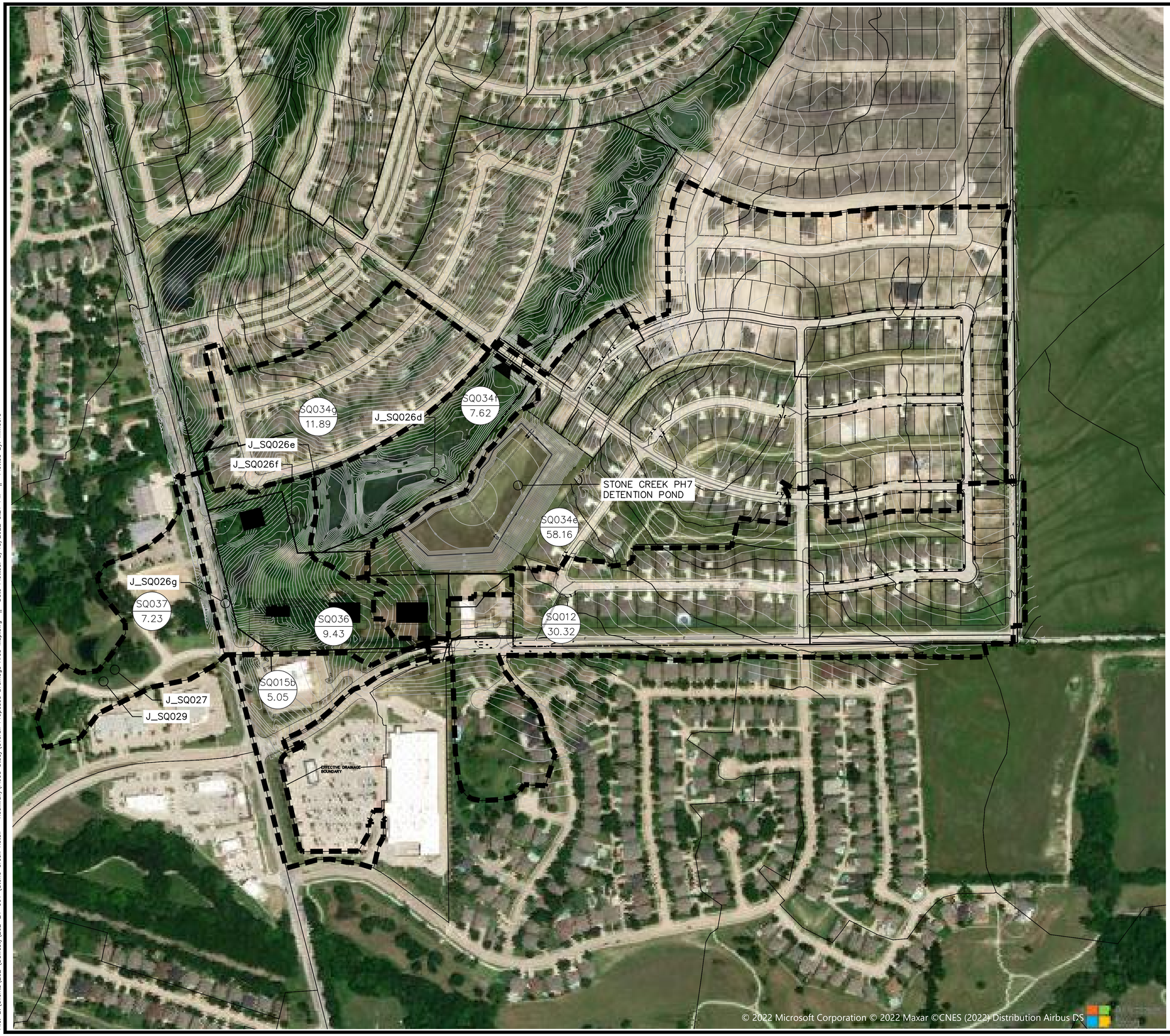
EXISTING LAND USE & SOILS MAP

BANNISTER ENGINEERING
240 North Mitchell Road | Mansfield, TX 76063| 817.842.2094| 817.842.2095 fax
REGISTRATION # F-10599 (TEXAS)

MICHAEL J. MOORE
128498
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

3/15/2022

SHEET NUMBER 8



N

GRAPHIC SCALE

200 0 100 200 400

(IN FEET)
1 inch = 200 ft.

LEGEND

- 118 — EXISTING CONTOUR
- Tc — TIME OF CONCENTRATION
- Tc — FLOW TYPE CHANGE
- AREA DIVIDE
- AREA / ACRES: DA-X / 1.00 — DRAINAGE AREA LABEL

POST-PROJECT REVISED SUBBASINS

1. SQ034e
2. SQ034f
3. SQ036 (SITE)

BENCHMARKS

BM#1:
CITY OF ROCKWALL MONUMENT 14

NAVD88
ELEV.=497.13

BANNISTER ENGINEERING
240 North Mitchell Road | Mansfield, TX 76063| 817.842.2094| 817.842.2095 fax
REGISTRATION # F-10399 (TEXAS)

STONE CREEK RETAIL
ROCKWALL, TEXAS

OVERALL PROPOSED DRAINAGE AREA MAP

No.	Date	Revision Description

PROJECT NO.: 262-21-001

STATE OF TEXAS
MICHAEL J. MOORE
128498
LICENSED
PROFESSIONAL ENGINEER

3/15/2022

SHEET NUMBER
9

File: B:\Clients\262 (DuWest)\262-21-001 (Stone Creek Retail - Rockwall)\Flood Study\Overall Proposed Drainage Area Map.dwg || Date Plotted: 3/15/2022 3:21 PM || Plotted By: mmoore

SCS TIME OF CONCENTRATION CALCULATIONS

LAG 8.1

EXISTING SCS Tc CALCULATIONS FOR AREA SQ034f

TYPE	CONDITION	DIST	UP ELEV	DOWN ELEV	SLOPE	Coeff.	P_2	VELOCITY	TIME (MIN)
SHEET	GRASS	79	510	492	22.8%	0.24	4.09	0.33	4.0
SHALLOW	GRASS	116	492	490.5	1.3%	16.13		1.83	1.1
CHANNEL	GRASS	871	SC PH7 - from HEC-RAS					2.5	5.8
								TOTAL	10.8

SCS CALCULATION REFERENCES

Sheet Flow

Sheet flow can be calculated using the following formula:

$$T_t = \frac{0.42\,(nL)^{0.8}}{60\,(P_2)^{0.5}(S)^{0.4}} = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5}(S)^{0.4}} \qquad (1.10)$$

where:

T_t = travel time (hr)
n = Manning roughness coefficient (see Table 1.10)
L = flow length (ft),
P_2 = 2-year, 24-hour rainfall
S = land slope (ft/ft)

Table 1.10 Roughness Coefficients (Manning's n) for Sheet Flow[1]

Surface Description	n
Smooth surfaces	
(concrete, asphalt, gravel or bare soil)	0.011
Fallow	
(no residue)	0.05
Cultivated soils:	
Residue cover < 20%	0.06
Residue cover > 20%	0.17
Grass:	
Short grass prairie	0.15
Dense grasses[2]	0.24
Bermuda grass	0.41
Range	
(natural)	0.13
Woods[3]	
Light underbrush	0.40
Dense underbrush	0.80

[1] The n values are a composite of information by Engman (1986).
[2] Includes species such as bluestem grass, buffalo grass, grama grass, and native grass mixtures.
[3] When selecting n, consider cover to a height of about 0.1 ft. This is the only part of the plant cover that will obstruct sheet flow.
Source: SCS, TR-55, Second Edition, June 1986.

NOTE: REFERENCED SHEET FLOW EQUATION CALCULATES Tc IN HOURS. THE EQUATION USED WAS MODIFIED TO CALCULATE Tc IN MINUTES

VELOCITY SHALLOW FLOW EQUATION

Unpaved $V = 16.13(S)^{0.5}$
Paved $V = 20.33(S)^{0.5}$

where:
V = average velocity (ft/s)
S = slope of hydraulic grade line (watercourse slope, ft/ft)

PHASE 7 STONE CREEK DETENTION POND

POND VOLUME CALCULATIONS

ELEVATION	AREA	VOLUME	TOTAL VOLUME
(ft)	(sf)	(cu.ft.)	(cu.ft.)
493	0	0	0
494	19,559	9,780	9,780
494.5	44,932	16,123	25,902
495	71,048	28,995	54,897
495.5	90,653	40,425	95,323
496	107,413	49,517	144,839
496.5	124,966	58,095	202,934
497	133,300	64,567	267,500
497.5	141,163	68,616	336,116
498	145,016	71,545	407,661
499	154,380	149,698	557,359
500	163,913	159,147	716,505
501	173,615	168,764	885,269
502	183,722	178,669	1,063,938

PROPOSED DETENTION POND SUMMARY

Storm Event	Discharge In	Top of Berm	Max. Storage	Discharge Out	Peak Elevation	Utilized Storage	Freeboard
	(cfs)		(ac.ft.)	(cfs)		(ac.ft.)	(ft)
100-YEAR	419.8	502	24.42	127.9	499.66	15.21	2.34
25-YEAR	327.8	502	24.42	70.2	498.83	12.21	3.17
10-YEAR	278.9	502	24.42	64.8	498.15	9.87	3.85
5-YEAR	230.3	502	24.42	58.8	497.47	7.62	4.53

WEIR EQUATION:
$Q = CLH^{1.5}$
C=WEIR COEFFICIENT=3.32
L=WEIR LENGTH
H=HEAD ABOVE WEIR

RISER EMERGENCY OVERFLOW
L=46'
H=2'
DEPTH=1.96'
Q CAPACITY=432.0 CFS
Q100=419.8 CFS

ROUTING TABLES

1622-1917 R_SQ015e	
Volume (ac-ft)	Discharge (cfs)
0.16	50
0.26	100
0.36	150
0.43	200
0.48	250
0.54	300
0.58	350
0.63	400
1.06	450
1.88	500
2.47	600
3.19	650
3.45	700

1202-1622 R_SQ015f	
Volume (ac-ft)	Discharge (cfs)
0.27	50
0.52	100
0.83	150
1.27	200
1.90	250
2.73	300
4.15	350
5.91	400
8.12	450
10.79	500
12.64	600
15.08	650

SCS CURVE NUMBER CALCULATIONS

PROPOSED CN CALCULATIONS

BASIN	LAND USE	AREA	SOIL GROUP	AREA	CN	%	CN*%
SQ036	OPEN SPACE (Good)	2.91	B	2.55	61	27.1%	16.5
			D	0.36	80	3.8%	3.0
	PAVED STREET	1.09	B	0.64	89	6.8%	6.0
			D	0.45	93	4.8%	4.4
	COMMERCIAL	5.43	B	2.68	92	28.4%	26.1
			D	2.75	95	29.2%	27.7
	TOTAL	9.43		9.43		**TOTAL**	**83.9**
SQ034e	OPEN SPACE (Good)	6.91	B	3.07	61	5.3%	3.2
			D	3.85	80	6.6%	5.3
	OPEN SPACE (Fair)	4.98	B	0.01	69	0.0%	0.0
			D	4.97	84	8.6%	7.2
	PAVED STREET	9.85	B	1.21	89	2.1%	1.9
			D	8.64	93	14.9%	13.8
	COMMERCIAL	2.16	B	0.00	92	0.0%	0.0
			D	2.16	95	3.7%	3.5
	RES 1/8 ACRE	18.76	B	0.62	87	1.1%	0.9
			D	18.14	93	31.2%	29.0
	RES 1/4 ACRE	14.21	B	2.89	78	5.0%	3.9
			D	11.32	88	19.5%	17.1
	RES 1/3 ACRE	1.12	B	0.00	75	0.0%	0.0
			D	1.12	87	1.9%	1.7
	RES 1/2 ACRE	0.17	B	0.00	75	0.0%	0.0
			D	0.17	87	0.3%	0.2
	TOTAL	58.16		58.16		**TOTAL**	**87.8**
SQ034f	OPEN SPACE (Good)	7.50	B	7.44	61	97.7%	59.6
			D	0.06	80	0.8%	0.6
	PAVED STREET	0.07	B	0.05	89	0.7%	0.6
			D	0.02	93	0.3%	0.3
	RES 1/4 ACRE	0.04	B	0.04	78	0.5%	0.4
			D	0.00	88	0.0%	0.0
	TOTAL	7.62		7.62		**TOTAL**	**61.5**

CN SUMMARY

BASIN	AREA	%	CN
SQ036	9.43	1.00	83.9
AMC-3			92.3
SQ034e	58.16	1.00	87.8
AMC-3			94.3
SQ034f	7.62	1.00	61.5
AMC-3			78.6

Cover Type	Cover Description	Land Use Code	A	B	C	D	W
Cultivated land	w/o conservation treatment	1	72	81	88	91	100
	w/ conservation treatment	2	62	71	78	81	100
Pasture	poor	3	68	79	86	89	100
	good	4	39	61	74	80	100
Open Space	good	5	39	61	74	80	100
Brush	good	6	30	48	65	73	100
Forest land	thin stand, poor cover	7	45	66	77	83	100
	good cover	8	30	55	70	77	100
Open space (lawns, parks, golf courses, cemeteries)	poor (grass cover < 50%)	9	68	79	86	89	100
	fair (grass cover 50% to 75%)*	10	49	69	79	84	100
	good (grass cover > 75%)	11	39	61	74	80	100
Impervious areas	Paved; excluding R.O.W	12	98	98	98	98	100
	Paved; open ditches + R.O.W.*	13	83	89	92	93	100
	Gravel + R.O.W.	14	76	85	89	91	100
	Dirt + R.O.W.	15	72	82	87	89	100
Urban districts	Commercial and business 85%IMP*	16	89	92	94	95	100
	Industrial 72% IMP	17	81	88	91	93	100
Residential	1/8 ac or less 65%IMP*	18	80	87	91	93	100
	1/4 ac 38%IMP*	19	66	78	85	88	100
	1/3 ac 30%IMP*	20	60	75	83	87	100
	1/2 ac 25%IMP*	21	60	75	83	87	100
	1 ac 20%IMP*	22	59	74	82	86	100
	2 ac 12%IMP	23	46	65	77	82	100

*iSWM CN checked and revised to match Rockwall CN.

BY:
DATE:
CK'D:
DATE:

LOSS RATE METHOD
STREAM ROUTING

COMPUTATION SUMMARY SHEET
HYDROLOGY BY UNIT HYDROGRAPH METHOD

SHEET 1 OF 1
SUBWATERSHED
MAJOR WATERSHED
JOB/FILE NO.:

ANALYSIS POINT	SUBWATERSHED AREA (SQ.MI.)	WATERSHED AREA (SQ.MI.)	UNIT HYDROGRAPH COEFFICIENTS: SCS METHOD C_N	SCS METHOD Lag (MIN)	SNYDER'S METHOD C_P	SNYDER'S METHOD T_P (HR)	PEAK DISCHARGES (CFS): Q_5	Q_{10}	Q_{25}	Q_{100}	COMMENTS
PRE-PROJECT											
SQ034e	0.08745	0.08745	94.24	9.10			221.3	268.2	315.2	403.8	
SQ034f	0.01264	0.01264	79.13	6.47			24.5	31.7	39	52.9	
SQ036	0.01742	0.01742	86.57	7.69			39.6	49.4	59.3	77.8	Site
Stone Creek Phase 7		0.08745					58.7	65.1	70.8	136.3	
R_SQ015e		0.22550					204.4	259.9	320.9	460.7	
R_SQ015f		0.24390					207.6	260.2	311.4	419.5	
J_SQ026d		0.21285					203.1	256.5	315.1	486.0	
J_SQ026e		0.22550					204.6	259.8	321.5	477.9	
J_SQ026f		0.24390					212.1	271	338.0	477.1	
J_SQ026g		0.26131					213.9	268.7	322.4	430.7	
J_SQ027		0.27331					216	271.6	327.5	435.4	
J_SQ029		0.42691					282.1	369	450.9	594.4	
J_SQ030		5.98831					1615.2	2059.1	2429.5	3206.1	
J_SQ031		6.08188					1383.1	1692.8	2073.3	2770.9	
J_SQ034		6.26240					1481.1	1823.8	2242.5	3023.6	
J_SQ035		6.28857					1470.8	1801.9	2188.7	2992.0	
J_SQ037		6.40425					1508.7	1837.7	2220.6	2997.4	
J_SQ039		6.50390					1572.7	1879.9	2270.3	3071.6	
J_SQ040		6.76735					1958.3	2276.6	2607.3	3185.4	
J_SQ041		7.03018					1960.1	2335.2	2768.3	3525.4	
POST-PROJECT											
SQ034e	0.09087	0.09087	95.46	9.1			230.3	278.9	327.8	419.8	
SQ034f	0.01191	0.01191	87.10	6.47			22.7	29.5	36.4	49.4	
SQ036	0.01473	0.01473	85.1	7.7			38.7	47.1	55.7	71.7	Proposed site.
Stone Creek Phase 7		0.09087					58.8	64.8	70.2	127.9	
R_SQ015e		0.22818					204.3	259.1	319.4	455.6	
R_SQ015f		0.24658					206.5	257.6	308.0	414.1	
J_SQ026d		0.21627					203.2	256.1	314.4	474.6	
J_SQ026e		0.22818					204.4	259	320.1	469.0	
J_SQ026f		0.24658					212	269.7	336.4	473.6	
J_SQ026g		0.26131					211.9	264.4	316.3	423.3	
J_SQ027		0.27331					213.9	267.1	321.1	428.0	
J_SQ029		0.42691					281.3	365.9	445.7	586.9	
J_SQ030		5.98831					1608.9	2049.6	2417.7	3186.3	
J_SQ031		6.08188					1379.7	1687.2	2063.6	2757.6	
J_SQ034		6.26240					1478.1	1818.6	2233.4	3010.4	
J_SQ035		6.28857					1467.9	1797.2	2180.1	2978.7	
J_SQ037		6.40425					1506.2	1833.2	2212.4	2985.8	
J_SQ039		6.50390					1572.9	1875.9	2262.1	3060.1	
J_SQ040		6.76735					1958.6	2276.8	2607.5	3185.4	
J_SQ041		7.03018					1960.5	2335.4	2768.4	3525.4	

100-YEAR DISCHARGE COMPARISON

PRE-PROJECT		POST-PROJECT		
DESIGN POINT	DISCHARGE	DESIGN POINT	DISCHARGE	DIFFERENCE
SQ034e	403.8	SQ034e	419.8	16.0
SQ034f	52.9	SQ034f	49.4	-3.5
SQ036	77.8	SQ036	71.7	-6.1
Stone Creek Phase 7	136.3	Stone Creek Phase 7	127.9	-8.4
J_SQ026d	486.0	J_SQ026d	474.6	-11.4
J_SQ026e	477.9	J_SQ026e	469.0	-8.9
J_SQ026f	477.1	J_SQ026f	473.6	-3.5
J_SQ026g	430.7	J_SQ026g	423.3	-7.4
J_SQ027	435.4	J_SQ027	428.0	-7.4
J_SQ029	594.4	J_SQ029	586.9	-7.5
J_SQ030	3206.1	J_SQ030	3186.3	-19.8
J_SQ031	2770.9	J_SQ031	2757.6	-13.3
J_SQ034	3023.6	J_SQ034	3010.4	-13.2
J_SQ035	2992.0	J_SQ035	2978.7	-13.3
J_SQ037	2997.4	J_SQ037	2985.8	-11.6
J_SQ039	3071.6	J_SQ039	3060.1	-11.5
J_SQ040	3185.4	J_SQ040	3185.4	0.0
J_SQ041	3525.4	J_SQ041	3525.4	0.0

25-YEAR DISCHARGE COMPARISON

PRE-PROJECT		POST-PROJECT		
DESIGN POINT	DISCHARGE	DESIGN POINT	DISCHARGE	DIFFERENCE
SQ034e	315.2	SQ034e	327.8	12.6
SQ034f	39.0	SQ034f	36.4	-2.6
SQ036	59.3	SQ036	55.7	-3.6
Stone Creek Phase 7	70.8	Stone Creek Phase 7	70.2	-0.6
J_SQ026d	315.1	J_SQ026d	314.4	-0.7
J_SQ026e	321.5	J_SQ026e	320.1	-1.4
J_SQ026f	338.0	J_SQ026f	336.4	-1.6
J_SQ026g	322.4	J_SQ026g	316.3	-6.1
J_SQ027	327.5	J_SQ027	321.1	-6.4
J_SQ029	450.9	J_SQ029	445.7	-5.2
J_SQ030	2429.5	J_SQ030	2417.7	-11.8
J_SQ031	2073.3	J_SQ031	2063.6	-9.7
J_SQ034	2242.5	J_SQ034	2233.4	-9.1
J_SQ035	2188.7	J_SQ035	2180.1	-8.6
J_SQ037	2220.6	J_SQ037	2212.4	-8.2
J_SQ039	2270.3	J_SQ039	2262.1	-8.2
J_SQ040	2607.3	J_SQ040	2607.5	0.2
J_SQ041	2768.3	J_SQ041	2768.4	0.1

10-YEAR DISCHARGE COMPARISON

PRE-PROJECT		POST-PROJECT		
DESIGN POINT	DISCHARGE	DESIGN POINT	DISCHARGE	DIFFERENCE
SQ034e	268.2	SQ034e	278.9	10.7
SQ034f	31.7	SQ034f	29.5	-2.2
SQ036	49.4	SQ036	47.1	-2.3
Stone Creek Phase 7	65.1	Stone Creek Phase 7	64.8	-0.3
J_SQ026d	256.5	J_SQ026d	256.1	-0.4
J_SQ026e	259.8	J_SQ026e	259.0	-0.8
J_SQ026f	271.0	J_SQ026f	269.7	-1.3
J_SQ026g	268.7	J_SQ026g	264.4	-4.3
J_SQ027	271.6	J_SQ027	267.1	-4.5
J_SQ029	369.0	J_SQ029	365.9	-3.1
J_SQ030	2059.1	J_SQ030	2049.6	-9.5
J_SQ031	1692.8	J_SQ031	1687.2	-5.6
J_SQ034	1823.8	J_SQ034	1818.6	-5.2
J_SQ035	1801.9	J_SQ035	1797.2	-4.7
J_SQ037	1837.7	J_SQ037	1833.2	-4.5
J_SQ039	1879.9	J_SQ039	1875.9	-4.0
J_SQ040	2276.6	J_SQ040	2276.8	0.2
J_SQ041	2335.2	J_SQ041	2335.4	0.2

5-YEAR DISCHARGE COMPARISON

PRE-PROJECT		POST-PROJECT		
DESIGN POINT	DISCHARGE	DESIGN POINT	DISCHARGE	DIFFERENCE
SQ034e	221.3	SQ034e	230.3	9.0
SQ034f	24.5	SQ034f	22.7	-1.8
SQ036	39.6	SQ036	38.7	-0.9
Stone Creek Phase 7	58.7	Stone Creek Phase 7	58.8	0.1
J_SQ026d	203.1	J_SQ026d	203.2	0.1
J_SQ026e	204.6	J_SQ026e	204.4	-0.2
J_SQ026f	212.1	J_SQ026f	212.0	-0.1
J_SQ026g	213.9	J_SQ026g	211.9	-2.0
J_SQ027	216.0	J_SQ027	213.9	-2.1
J_SQ029	282.1	J_SQ029	281.3	-0.8
J_SQ030	1615.2	J_SQ030	1608.9	-6.3
J_SQ031	1383.1	J_SQ031	1379.7	-3.4
J_SQ034	1481.1	J_SQ034	1478.1	-3.0
J_SQ035	1470.8	J_SQ035	1467.9	-2.9
J_SQ037	1508.7	J_SQ037	1506.2	-2.5
J_SQ039	1572.7	J_SQ039	1572.9	0.2
J_SQ040	1958.3	J_SQ040	1958.6	0.3
J_SQ041	1960.1	J_SQ041	1960.5	0.4

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REGISTRATION # F-10599 (TEXAS)

STONE CREEK RETAIL
ROCKWALL, TEXAS

OVERALL PROPOSED DRAINAGE CALCULATIONS

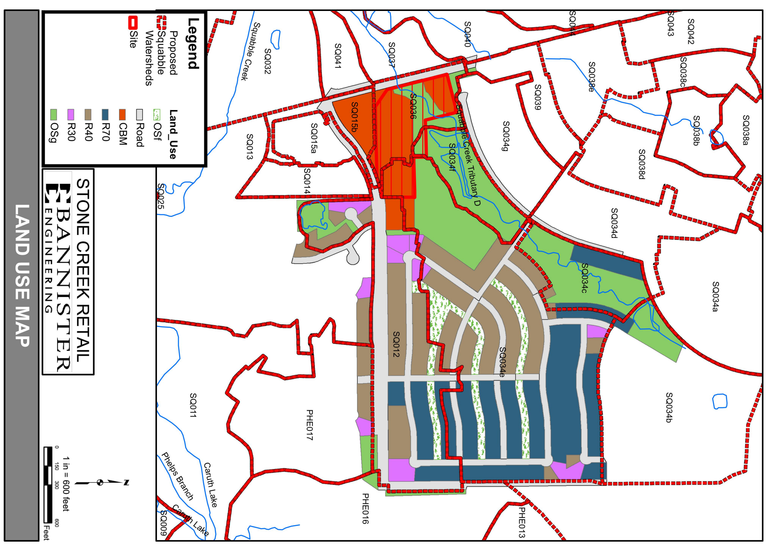
No.	Date	Revision Description

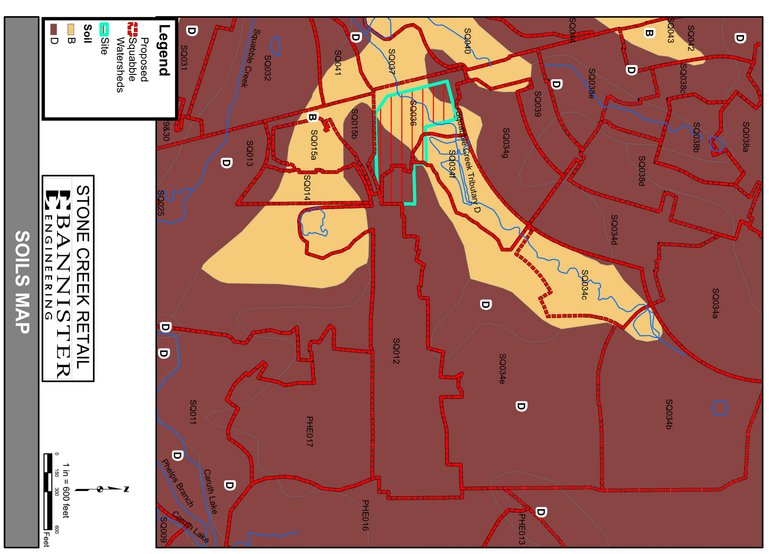
PROJECT NO.: 262--21--001

STATE OF TEXAS
MICHAEL J. MOORE
128498
LICENSED
PROFESSIONAL ENGINEER
3/15/2022

SHEET NUMBER
10

File: B:\Clients\262 (DuWest)\262--21--001 (Stone Creek Retail -- Rockwall)\Flood Study\Overall Proposed Drainage Area Map.dwg || Date Plotted: 3/15/2022 3:22 PM || Plotted By: mmoore





No.	Date	Revision Description

PROJECT NO.: 262-21-001

STONE CREEK RETAIL

ROCKWALL, TEXAS

PROPOSED LAND USE & SOILS MAP

BANNISTER ENGINEERING
240 North Mitchell Road | Mansfield, TX 76063| 817.842.2094| 817.842.2095 fax
REGISTRATION # F-10599 (TEXAS)

STATE OF TEXAS
MICHAEL J. MOORE
128498
LICENSED PROFESSIONAL ENGINEER

3/15/2022

SHEET NUMBER
11

N

GRAPHIC SCALE

30 0 15 30 60

(IN FEET)
1 inch = 30 ft.

LEGEND

— — —631— — —	EXISTING CONTOUR
——— ———	INEFFECTIVE FLOW LIMIT
——EF100——	EFFECTIVE 100–YEAR FLOODPLAIN
——EX100——	PRE–PROJECT 100–YEAR FLOODPLAIN
———	PRE–PROJECT MDS 100YR FLOODPLAIN

BENCHMARKS

BM#1:
CITY OF ROCKWALL MONUMENT 14

NAVD88
ELEV.=497.13

BANNISTER
ENGINEERING
240 N. Mitchell Road | Mansfield, TX 76063 | 817.842.2094 | 817.842.2095 fax
REGISTRATION # F-10599 (TEXAS)

STONE CREEK RETAIL

ROCKWALL, TEXAS

EXISTING HYDRAULIC WORK MAP

No.	Date	Revision Description

PROJECT NO.: 262-21-001

STATE OF TEXAS
MICHAEL J. MOORE
128498
LICENSED
PROFESSIONAL ENGINEER

3/15/2022

SHEET NUMBER

12

File: B:\Clients\262 (DuWest)\262-21-001 (Stone Creek Retail - Rockwall)\Flood Study\Hydraulic Work Map 262-21-001.dwg || Date Plotted: 3/15/2022 3:25 PM || Plotted By: mmoore

HEC-RAS Plan: Pre-Proj River: RIVER-1 Reach: Reach-1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	4830	10 Year	282.80	519.35	520.87	520.87	521.29	0.025442	5.22	54.13	65.25	1.01
Reach-1	4830	50 Year	380.30	519.35	521.06	521.06	521.56	0.024427	5.65	67.39	72.18	1.02
Reach-1	4830	100 Year	428.80	519.35	521.15	521.15	521.68	0.023297	5.84	73.74	75.26	1.01
Reach-1	4830	500 Year	532.40	519.35	521.32	521.32	521.92	0.021548	6.21	87.15	81.38	0.99
Reach-1	4587	10 Year	282.80	513.00	518.86		518.87	0.000044	0.69	430.47	117.28	0.06
Reach-1	4587	50 Year	380.30	513.00	519.62		519.63	0.000047	0.78	525.32	135.41	0.06
Reach-1	4587	100 Year	428.80	513.00	519.73		519.74	0.000055	0.86	540.77	138.23	0.06
Reach-1	4587	500 Year	532.40	513.00	519.89		519.91	0.000076	1.03	563.88	142.35	0.08
Reach-1	4437	10 Year	221.00	513.00	518.87	513.47	518.87	0.000005	0.24	926.41	201.01	0.02
Reach-1	4437	50 Year	335.20	513.00	519.62	513.61	519.62	0.000008	0.31	1083.55	217.60	0.02
Reach-1	4437	100 Year	390.40	513.00	519.73	513.68	519.73	0.000010	0.35	1108.31	220.27	0.03
Reach-1	4437	500 Year	493.30	513.00	519.90	513.80	519.90	0.000014	0.43	1145.06	224.17	0.03
Reach-1	4338		Culvert									
Reach-1	4291	10 Year	272.80	510.40	512.89	512.89	513.25	0.028885	5.18	66.91	100.17	0.83
Reach-1	4291	50 Year	409.00	510.40	513.15	513.15	513.54	0.028737	5.59	95.01	113.44	0.84
Reach-1	4291	100 Year	479.10	510.40	513.25	513.25	513.66	0.029747	5.86	105.98	116.21	0.87
Reach-1	4291	500 Year	623.10	510.40	513.41	513.41	513.90	0.032533	6.42	124.98	120.85	0.92
Reach-1	4188	10 Year	272.80	508.32	510.93	510.68	511.05	0.017514	3.45	106.19	127.12	0.47
Reach-1	4188	50 Year	409.00	508.32	511.15	510.83	511.31	0.019117	3.91	134.76	130.67	0.50
Reach-1	4188	100 Year	479.10	508.32	511.24	510.92	511.42	0.020174	4.15	146.88	132.32	0.52
Reach-1	4188	500 Year	623.10	508.32	511.41	511.06	511.63	0.021960	4.57	169.63	135.38	0.55
Reach-1	3967	10 Year	272.80	501.10	505.24	505.24	505.74	0.036683	6.03	55.71	58.76	0.68
Reach-1	3967	50 Year	409.00	501.10	505.69	505.59	506.16	0.031380	6.25	85.16	73.06	0.65
Reach-1	3967	100 Year	479.10	501.10	505.89	505.74	506.34	0.028808	6.26	100.58	79.53	0.63
Reach-1	3967	500 Year	623.10	501.10	506.23		506.67	0.025430	6.31	128.62	85.54	0.60
Reach-1	3831	10 Year	272.80	498.10	502.86		503.01	0.011138	3.28	88.38	45.66	0.38
Reach-1	3831	50 Year	409.00	498.10	503.37		503.57	0.012865	3.81	114.80	55.84	0.41
Reach-1	3831	100 Year	479.10	498.10	503.58		503.81	0.013304	4.07	126.49	58.50	0.43
Reach-1	3831	500 Year	623.10	498.10	503.96		504.24	0.013766	4.51	150.16	63.54	0.44
Reach-1	3669	10 Year	272.80	496.18	501.34		501.49	0.009474	3.50	97.14	66.90	0.36

HEC-RAS Plan: Pre-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	3669	50 Year	409.00	496.18	501.93		502.08	0.008351	3.54	138.10	71.48	0.34
Reach-1	3669	100 Year	479.10	496.18	502.19		502.34	0.007954	3.61	156.49	74.02	0.34
Reach-1	3669	500 Year	623.10	496.18	502.64		502.81	0.007470	3.79	191.09	78.93	0.34
Reach-1	3525	10 Year	272.80	495.50	499.43		499.78	0.021679	4.75	58.19	30.05	0.56
Reach-1	3525	50 Year	409.00	495.50	500.17		500.57	0.019240	5.14	84.12	40.85	0.54
Reach-1	3525	100 Year	479.10	495.50	500.48		500.89	0.018499	5.30	97.52	46.09	0.54
Reach-1	3525	500 Year	623.10	495.50	501.03		501.46	0.017060	5.51	125.54	55.36	0.53
Reach-1	3310	10 Year	272.80	492.48	497.61		497.71	0.005232	2.53	107.87	42.71	0.28
Reach-1	3310	50 Year	409.00	492.48	498.32		498.46	0.005731	2.91	140.53	49.72	0.30
Reach-1	3310	100 Year	479.10	492.48	498.62		498.77	0.005955	3.09	155.64	53.10	0.31
Reach-1	3310	500 Year	623.10	492.48	499.13		499.31	0.006414	3.42	184.32	59.50	0.33
Reach-1	3134	10 Year	272.80	491.51	495.61		495.98	0.023895	4.98	58.90	36.49	0.58
Reach-1	3134	50 Year	409.00	491.51	496.17		496.61	0.024250	5.57	81.76	45.51	0.60
Reach-1	3134	100 Year	479.10	491.51	496.42		496.88	0.024163	5.79	93.28	49.58	0.60
Reach-1	3134	500 Year	623.10	491.51	496.87		497.37	0.023271	6.08	117.44	57.20	0.60
Reach-1	2997	10 Year	303.70	491.25	494.56		494.64	0.004711	2.37	138.05	74.88	0.27
Reach-1	2997	50 Year	452.40	491.25	495.04		495.14	0.005251	2.81	174.98	81.53	0.29
Reach-1	2997	100 Year	530.10	491.25	495.24		495.37	0.005483	3.01	192.10	84.62	0.30
Reach-1	2997	500 Year	691.20	491.25	495.56		495.72	0.006290	3.44	220.04	89.43	0.33
Reach-1	2917	10 Year	303.70	491.50	493.20	493.20	493.72	0.062827	6.20	55.28	55.23	0.91
Reach-1	2917	50 Year	452.40	491.50	493.55	493.55	494.16	0.058026	6.86	75.79	63.63	0.90
Reach-1	2917	100 Year	530.10	491.50	493.70	493.70	494.36	0.056110	7.14	86.06	67.44	0.90
Reach-1	2917	500 Year	691.20	491.50	494.20		494.75	0.036216	6.67	122.54	79.52	0.75
Reach-1	2800	10 Year	303.70	490.60	492.98		493.00	0.001201	1.24	250.40	138.69	0.16
Reach-1	2800	50 Year	452.40	490.60	493.42		493.45	0.001325	1.49	312.59	144.40	0.17
Reach-1	2800	100 Year	530.10	490.60	493.65		493.69	0.001313	1.58	347.06	147.47	0.17
Reach-1	2800	500 Year	691.20	490.60	494.14		494.18	0.001236	1.72	419.93	153.76	0.17
Reach-1	2677	10 Year	303.70	490.30	492.21	492.15	492.55	0.032680	5.55	73.28	86.01	0.78
Reach-1	2677	50 Year	452.40	490.30	492.85		493.05	0.013683	4.51	135.96	110.28	0.54
Reach-1	2677	100 Year	530.10	490.30	493.15		493.33	0.009900	4.19	171.01	119.22	0.47
Reach-1	2677	500 Year	691.20	490.30	493.74		493.88	0.005963	3.74	244.98	131.60	0.37

HEC-RAS Plan: Pre-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	2550	10 Year	303.70	489.63	492.32		492.34	0.000270	1.16	303.29	144.04	0.13
Reach-1	2550	50 Year	452.40	489.63	492.86		492.89	0.000305	1.39	384.05	155.11	0.14
Reach-1	2550	100 Year	530.10	489.63	493.14		493.17	0.000306	1.48	429.02	161.23	0.14
Reach-1	2550	500 Year	691.20	489.63	493.72		493.75	0.000297	1.61	525.05	174.12	0.14
Reach-1	2396	10 Year	270.70	489.63	492.28		492.30	0.000248	1.05	270.77	124.71	0.12
Reach-1	2396	50 Year	416.40	489.63	492.81		492.84	0.000306	1.31	339.70	134.32	0.14
Reach-1	2396	100 Year	484.70	489.63	493.10		493.13	0.000303	1.38	382.92	227.01	0.14
Reach-1	2396	500 Year	628.80	489.63	493.68		493.71	0.000268	1.45	517.24	237.64	0.13
Reach-1	2200	10 Year	270.70	489.63	492.19		492.23	0.000539	1.49	183.10	82.84	0.17
Reach-1	2200	50 Year	416.40	489.63	492.70		492.75	0.000670	1.87	225.78	86.47	0.20
Reach-1	2200	100 Year	484.70	489.63	492.98		493.04	0.000663	1.97	250.48	88.51	0.20
Reach-1	2200	500 Year	628.80	489.63	493.56		493.63	0.000616	2.11	326.36	240.58	0.20
Reach-1	2028	10 Year	270.70	487.50	491.66		491.96	0.013209	4.35	62.33	28.40	0.52
Reach-1	2028	50 Year	416.40	487.50	491.65		492.35	0.031961	6.74	61.86	28.33	0.80
Reach-1	2028	100 Year	484.70	487.50	491.58	491.54	492.60	0.047555	8.09	59.92	28.06	0.98
Reach-1	2028	500 Year	628.80	487.50	491.96	491.96	493.18	0.049168	8.89	70.78	29.53	1.01
Reach-1	1973	10 Year	270.70	488.58	491.81		491.81	0.000014	0.30	908.57	290.49	0.03
Reach-1	1973	50 Year	416.40	488.58	491.99		491.99	0.000028	0.44	961.51	291.76	0.04
Reach-1	1973	100 Year	484.70	488.58	492.07		492.08	0.000034	0.50	986.86	292.53	0.05
Reach-1	1973	500 Year	628.80	488.58	492.21		492.22	0.000051	0.62	1027.78	293.77	0.06
Reach-1	1917	10 Year	270.70	489.00	491.58	491.58	491.78	0.026517	5.28	98.54	218.48	0.74
Reach-1	1917	50 Year	416.40	489.00	491.72	491.72	491.96	0.029801	5.93	131.47	239.74	0.80
Reach-1	1917	100 Year	484.70	489.00	491.74	491.74	492.04	0.037775	6.71	134.85	241.82	0.90
Reach-1	1917	500 Year	628.80	489.00	491.90	491.90	492.18	0.033371	6.69	177.20	287.74	0.86
Reach-1	1716	10 Year	270.70	478.80	480.16		480.22	0.008586	2.05	132.35	128.71	0.35
Reach-1	1716	50 Year	416.40	478.80	480.12		480.28	0.023283	3.29	126.91	127.44	0.57
Reach-1	1716	100 Year	484.70	478.80	480.60		480.70	0.008481	2.57	192.05	141.86	0.37
Reach-1	1716	500 Year	628.80	478.80	481.83		481.87	0.001712	1.72	386.84	173.90	0.18
Reach-1	1622	10 Year	279.70	476.80	478.01	478.01	478.38	0.068920	5.10	61.51	85.46	0.91
Reach-1	1622	50 Year	391.30	476.80	479.25		479.33	0.005417	2.47	183.82	112.06	0.29

HEC-RAS Plan: Pre-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1622	100 Year	435.70	476.80	480.38		480.41	0.001314	1.60	322.83	133.82	0.15
Reach-1	1622	500 Year	551.50	476.80	481.76		481.78	0.000527	1.28	524.56	158.65	0.10
Reach-1	1563	10 Year	279.70	474.30	477.19		477.27	0.006180	2.49	133.79	98.40	0.31
Reach-1	1563	50 Year	391.30	474.30	479.21		479.23	0.000678	1.30	371.74	137.85	0.11
Reach-1	1563	100 Year	435.70	474.30	480.36		480.37	0.000289	1.00	543.74	158.28	0.08
Reach-1	1563	500 Year	551.50	474.30	481.75		481.76	0.000167	0.89	775.58	176.12	0.06
Reach-1	1513	10 Year	279.70	474.00	476.90		476.99	0.005430	2.62	127.76	81.22	0.30
Reach-1	1513	50 Year	391.30	474.00	479.17		479.19	0.000616	1.37	366.60	127.71	0.11
Reach-1	1513	100 Year	435.70	474.00	480.35		480.36	0.000283	1.08	529.28	149.60	0.08
Reach-1	1513	500 Year	551.50	474.00	481.74		481.75	0.000174	0.98	756.47	176.81	0.06
Reach-1	1422	10 Year	279.70	471.64	476.67		476.72	0.001809	2.21	188.62	91.69	0.19
Reach-1	1422	50 Year	391.30	471.64	479.14		479.15	0.000308	1.23	469.40	133.97	0.08
Reach-1	1422	100 Year	435.70	471.64	480.33		480.34	0.000164	1.00	638.73	151.14	0.06
Reach-1	1422	500 Year	551.50	471.64	481.73		481.74	0.000115	0.93	864.78	172.08	0.05
Reach-1	1284	10 Year	279.70	472.20	476.60		476.61	0.000421	0.99	346.78	142.03	0.09
Reach-1	1284	50 Year	391.30	472.20	479.13		479.13	0.000090	0.64	796.37	211.62	0.05
Reach-1	1284	100 Year	435.70	472.20	480.32		480.33	0.000051	0.54	1068.22	242.02	0.03
Reach-1	1284	500 Year	551.50	472.20	481.73		481.73	0.000037	0.52	1429.72	273.96	0.03
Reach-1	1202	10 Year	279.70	469.60	476.54	472.82	476.57	0.000389	1.51	219.63	173.52	0.11
Reach-1	1202	50 Year	391.30	469.60	479.10	473.30	479.12	0.000169	1.28	349.96	263.32	0.08
Reach-1	1202	100 Year	435.70	469.60	480.30	473.47	480.32	0.000124	1.20	411.23	290.66	0.07
Reach-1	1202	500 Year	551.50	469.60	481.70	473.88	481.72	0.000117	1.28	482.55	317.93	0.07
Reach-1	1119.5		Culvert									
Reach-1	1076	10 Year	282.00	469.20	472.93	472.93	474.78	0.023479	10.91	25.85	87.56	1.00
Reach-1	1076	50 Year	395.80	469.20	473.87	473.87	476.19	0.021797	12.22	32.39	128.13	1.00
Reach-1	1076	100 Year	440.80	469.20	474.20	474.20	476.71	0.021461	12.70	34.72	140.97	1.00
Reach-1	1076	500 Year	555.70	469.20	474.90	474.90	475.09	0.002633	4.85	190.24	165.71	0.36
Reach-1	1026	10 Year	282.00	465.90	471.01		471.06	0.000698	1.99	181.74	85.91	0.17
Reach-1	1026	50 Year	395.80	465.90	471.24		471.32	0.001080	2.56	202.38	93.46	0.22
Reach-1	1026	100 Year	440.80	465.90	471.40		471.49	0.001136	2.69	217.83	98.73	0.22

HEC-RAS Plan: Pre-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1026	500 Year	555.70	465.90	471.51		471.65	0.001612	3.26	229.14	102.43	0.27
Reach-1	981	10 Year	282.00	465.70	470.99		471.03	0.000553	1.85	200.66	97.08	0.16
Reach-1	981	50 Year	395.80	465.70	471.20		471.28	0.000872	2.40	222.73	105.91	0.20
Reach-1	981	100 Year	440.80	465.70	471.36		471.44	0.000921	2.52	240.09	112.38	0.20
Reach-1	981	500 Year	555.70	465.70	471.46		471.58	0.001331	3.07	251.04	116.27	0.25
Reach-1	918	10 Year	282.00	465.30	470.98		471.00	0.000248	1.24	310.87	138.11	0.10
Reach-1	918	50 Year	395.80	465.30	471.20		471.23	0.000390	1.61	341.55	145.46	0.13
Reach-1	918	100 Year	440.80	465.30	471.36		471.39	0.000411	1.69	365.21	150.88	0.14
Reach-1	918	500 Year	555.70	465.30	471.45		471.50	0.000595	2.06	379.59	154.08	0.17
Reach-1	833	10 Year	282.00	464.10	470.97	468.82	470.98	0.000154	1.01	445.86	201.91	0.07
Reach-1	833	50 Year	395.80	464.10	471.18	469.99	471.19	0.000276	1.38	489.21	211.73	0.09
Reach-1	833	100 Year	440.80	464.10	471.34	470.27	471.35	0.000286	1.43	523.46	217.95	0.09
Reach-1	833	500 Year	555.70	464.10	471.43	470.27	471.45	0.000414	1.73	542.53	221.34	0.11
Reach-1	817.5		Culvert									
Reach-1	802	10 Year	282.00	463.92	467.34	466.81	467.44	0.005690	3.52	134.62	107.33	0.34
Reach-1	802	50 Year	395.80	463.92	467.74	466.81	467.85	0.005549	3.76	182.16	128.59	0.34
Reach-1	802	100 Year	440.80	463.92	467.88	466.82	467.99	0.005497	3.83	200.36	135.85	0.35
Reach-1	802	500 Year	555.70	463.92	468.18	467.06	468.29	0.005376	3.99	243.25	146.09	0.35
Reach-1	726	10 Year	282.00	463.60	466.81		466.93	0.008483	2.84	107.79	76.39	0.34
Reach-1	726	50 Year	395.80	463.60	467.17		467.32	0.008976	3.24	138.43	91.08	0.36
Reach-1	726	100 Year	440.80	463.60	467.30		467.46	0.009085	3.37	150.37	96.20	0.37
Reach-1	726	500 Year	555.70	463.60	467.56		467.75	0.009732	3.71	176.62	106.60	0.38
Reach-1	635	10 Year	282.00	462.00	464.69	464.69	465.28	0.055775	6.34	49.72	48.27	0.84
Reach-1	635	50 Year	395.80	462.00	465.06	465.06	465.67	0.048502	6.71	69.95	61.60	0.81
Reach-1	635	100 Year	440.80	462.00	465.18	465.18	465.81	0.047404	6.87	77.23	65.74	0.81
Reach-1	635	500 Year	555.70	462.00	465.48	465.45	466.10	0.041128	6.97	99.15	76.87	0.77
Reach-1	619	10 Year	282.00	460.00	464.25		464.55	0.018752	4.45	64.29	35.08	0.50
Reach-1	619	50 Year	395.80	460.00	464.66		465.07	0.020718	5.19	82.06	50.78	0.54
Reach-1	619	100 Year	440.80	460.00	464.80		465.24	0.021169	5.42	89.57	56.11	0.55
Reach-1	619	500 Year	555.70	460.00	465.11		465.61	0.022059	5.90	108.69	67.81	0.57

HEC-RAS Plan: Pre-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	495	10 Year	282.00	458.30	462.20		462.37	0.016112	3.28	86.59	60.43	0.45
Reach-1	495	50 Year	395.80	458.30	462.56		462.77	0.015970	3.72	111.07	76.60	0.46
Reach-1	495	100 Year	440.80	458.30	462.67		462.90	0.016008	3.87	120.53	82.00	0.47
Reach-1	495	500 Year	555.70	458.30	462.94		463.20	0.016084	4.20	144.27	94.20	0.48
Reach-1	393	10 Year	282.00	456.95	460.91	459.87	461.07	0.010542	3.50	103.01	95.31	0.39
Reach-1	393	50 Year	395.80	456.95	461.17	460.61	461.37	0.012367	4.04	129.30	106.93	0.42
Reach-1	393	100 Year	440.80	456.95	461.26	460.74	461.48	0.012933	4.22	139.10	110.95	0.44
Reach-1	393	500 Year	555.70	456.95	461.45	460.94	461.71	0.014548	4.67	160.99	119.45	0.47

HEC-RAS Plan: PrePro River: RIVER-1 Reach: Reach-1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	4830	10yr	294.00	519.35	520.89	520.89	521.32	0.025262	5.26	55.84	66.19	1.01
Reach-1	4830	50yr	392.00	519.35	521.08	521.08	521.59	0.024217	5.70	68.85	72.90	1.01
Reach-1	4830	100yr	441.00	519.35	521.17	521.17	521.71	0.022900	5.88	75.49	76.09	1.00
Reach-1	4830	500yr	544.00	519.35	521.34	521.34	521.94	0.021345	6.25	88.70	82.06	0.99
Reach-1	4587	10yr	294.00	513.00	518.52		518.53	0.000062	0.78	391.12	110.37	0.06
Reach-1	4587	50yr	392.00	513.00	519.59		519.60	0.000050	0.81	521.85	134.77	0.06
Reach-1	4587	100yr	441.00	513.00	519.73		519.74	0.000058	0.89	540.59	138.20	0.07
Reach-1	4587	500yr	544.00	513.00	519.89		519.90	0.000080	1.06	563.04	142.20	0.08
Reach-1	4437	10yr	204.00	513.00	518.52	513.44	518.52	0.000006	0.24	857.91	195.92	0.02
Reach-1	4437	50yr	324.00	513.00	519.59	513.60	519.59	0.000007	0.30	1078.05	217.00	0.02
Reach-1	4437	100yr	378.00	513.00	519.73	513.67	519.73	0.000009	0.34	1108.10	220.24	0.03
Reach-1	4437	500yr	481.00	513.00	519.89	513.78	519.89	0.000013	0.42	1143.84	224.05	0.03
Reach-1	4338		Culvert									
Reach-1	4291	10yr	204.00	510.40	512.70	512.70	513.05	0.029995	5.00	48.89	80.77	0.83
Reach-1	4291	50yr	324.00	510.40	513.01	513.01	513.37	0.028699	5.32	78.82	109.22	0.83
Reach-1	4291	100yr	378.00	510.40	513.11	513.11	513.48	0.028395	5.47	89.70	112.07	0.84
Reach-1	4291	500yr	481.00	510.40	513.25	513.25	513.67	0.029759	5.87	106.28	116.28	0.87
Reach-1	4188	10yr	204.00	508.32	510.82	510.58	510.91	0.014858	3.04	92.35	125.82	0.43
Reach-1	4188	50yr	324.00	508.32	511.02	510.75	511.15	0.017870	3.61	118.18	128.36	0.48
Reach-1	4188	100yr	378.00	508.32	511.11	510.81	511.25	0.018552	3.80	129.23	129.90	0.49
Reach-1	4188	500yr	481.00	508.32	511.25	510.92	511.43	0.019607	4.11	148.64	132.56	0.51
Reach-1	3967	10yr	204.00	501.10	504.78	504.65	505.36	0.052446	6.25	34.82	27.40	0.79
Reach-1	3967	50yr	324.00	501.10	505.42	505.39	505.91	0.035153	6.18	66.38	64.31	0.68
Reach-1	3967	100yr	378.00	501.10	505.59	505.53	506.07	0.032930	6.25	78.06	69.88	0.66
Reach-1	3967	500yr	481.00	501.10	505.88	505.74	506.35	0.029893	6.36	99.39	79.05	0.64
Reach-1	3831	10yr	204.00	498.10	502.49		502.61	0.010147	2.94	72.67	39.61	0.35
Reach-1	3831	50yr	324.00	498.10	503.09		503.26	0.012213	3.45	99.70	52.00	0.40
Reach-1	3831	100yr	378.00	498.10	503.29		503.47	0.012461	3.66	110.00	54.71	0.41
Reach-1	3831	500yr	481.00	498.10	503.62		503.84	0.012686	4.01	128.94	59.04	0.42
Reach-1	3669	10yr	216.00	496.18	500.99		501.14	0.009548	3.34	74.48	44.15	0.36

HEC-RAS Plan: PrePro River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	3669	50yr	326.00	496.18	501.59		501.74	0.008938	3.51	114.00	68.82	0.35
Reach-1	3669	100yr	386.00	496.18	501.84		501.99	0.008505	3.53	131.56	70.77	0.35
Reach-1	3669	500yr	505.00	496.18	502.27		502.43	0.007839	3.64	162.96	74.97	0.34
Reach-1	3525	10yr	216.00	495.50	499.07		499.38	0.022868	4.49	48.18	24.96	0.56
Reach-1	3525	50yr	326.00	495.50	499.77		500.13	0.019984	4.88	68.98	34.72	0.54
Reach-1	3525	100yr	386.00	495.50	500.08		500.46	0.019059	5.04	80.53	39.33	0.54
Reach-1	3525	500yr	505.00	495.50	500.60		501.01	0.017939	5.31	103.23	48.15	0.53
Reach-1	3310	10yr	216.00	492.48	497.18		497.27	0.005301	2.40	90.07	39.01	0.28
Reach-1	3310	50yr	326.00	492.48	497.85		497.97	0.005863	2.76	118.16	44.71	0.30
Reach-1	3310	100yr	386.00	492.48	498.15		498.28	0.006083	2.93	131.91	47.69	0.31
Reach-1	3310	500yr	505.00	492.48	498.64		498.80	0.006497	3.24	156.69	53.33	0.32
Reach-1	3134	10yr	216.00	491.51	495.66	494.61	495.89	0.012613	3.91	60.75	37.29	0.43
Reach-1	3134	50yr	326.00	491.51	496.26	495.20	496.53	0.012128	4.41	85.94	47.03	0.44
Reach-1	3134	100yr	386.00	491.51	496.48	495.47	496.78	0.012739	4.72	96.61	50.70	0.45
Reach-1	3134	500yr	505.00	491.51	496.89	495.92	497.24	0.013071	5.16	118.84	57.61	0.47
Reach-1	2997	10yr	253.00	492.00	493.78	493.08	493.96	0.015133	3.44	73.44	71.25	0.46
Reach-1	2997	50yr	378.00	492.00	494.08	493.39	494.38	0.019804	4.38	86.20	75.75	0.54
Reach-1	2997	100yr	448.00	492.00	494.40	493.56	494.71	0.017301	4.51	99.41	78.58	0.52
Reach-1	2997	500yr	589.00	492.00	494.99	493.86	495.34	0.014274	4.75	124.10	83.87	0.49
Reach-1	2957		Culvert									
Reach-1	2917	10yr	253.00	491.30	492.87	492.87	493.55	0.081943	6.60	38.35	28.83	1.01
Reach-1	2917	50yr	378.00	491.30	493.40	493.40	494.01	0.050474	6.46	63.58	69.46	0.84
Reach-1	2917	100yr	448.00	491.30	493.56	493.56	494.23	0.050717	6.84	71.38	72.73	0.85
Reach-1	2917	500yr	589.00	491.30	494.15		494.71	0.030046	6.25	101.12	87.84	0.68
Reach-1	2800	10yr	253.00	490.60	492.81		492.83	0.001119	1.13	228.22	136.59	0.15
Reach-1	2800	50yr	378.00	490.60	493.24		493.27	0.001205	1.35	287.41	142.11	0.16
Reach-1	2800	100yr	448.00	490.60	493.54		493.57	0.001088	1.40	330.88	146.04	0.16
Reach-1	2800	500yr	589.00	490.60	494.16		494.19	0.000874	1.45	423.65	154.07	0.14
Reach-1	2677	10yr	253.00	490.30	492.20		492.44	0.023691	4.70	72.10	85.48	0.67
Reach-1	2677	50yr	378.00	490.30	492.73		492.91	0.012461	4.15	123.25	105.81	0.51

HEC-RAS Plan: PrePro River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	2677	100yr	448.00	490.30	493.16		493.29	0.006924	3.51	172.25	119.43	0.39
Reach-1	2677	500yr	589.00	490.30	493.91		494.00	0.003358	2.91	267.59	135.16	0.28
Reach-1	2550	10yr	253.00	489.63	492.27		492.28	0.000201	0.98	296.19	143.03	0.11
Reach-1	2550	50yr	378.00	489.63	492.75		492.77	0.000242	1.21	366.83	152.82	0.12
Reach-1	2550	100yr	448.00	489.63	493.16		493.18	0.000216	1.24	430.98	161.50	0.12
Reach-1	2550	500yr	589.00	489.63	493.90		493.92	0.000184	1.31	556.55	178.14	0.11
Reach-1	2396	10yr	257.00	489.63	492.23		492.25	0.000238	1.02	264.93	123.86	0.12
Reach-1	2396	50yr	386.00	489.63	492.70		492.73	0.000298	1.27	324.90	132.31	0.13
Reach-1	2396	100yr	486.00	489.63	493.11		493.14	0.000301	1.38	385.41	227.21	0.14
Reach-1	2396	500yr	679.00	489.63	493.85		493.88	0.000260	1.48	559.40	240.89	0.13
Reach-1	2200	10yr	257.00	489.63	492.15		492.18	0.000516	1.44	179.56	82.53	0.17
Reach-1	2200	50yr	386.00	489.63	492.59		492.64	0.000654	1.81	216.59	85.70	0.20
Reach-1	2200	100yr	486.00	489.63	492.99		493.05	0.000658	1.97	251.51	88.59	0.20
Reach-1	2200	500yr	679.00	489.63	493.74		493.81	0.000588	2.13	369.71	243.57	0.20
Reach-1	2028	10yr	257.00	487.50	491.66		491.93	0.011925	4.13	62.30	28.39	0.49
Reach-1	2028	50yr	386.00	487.50	491.68		492.27	0.026230	6.15	62.84	28.47	0.73
Reach-1	2028	100yr	486.00	487.50	491.55	491.54	492.60	0.049798	8.23	59.09	27.95	1.00
Reach-1	2028	500yr	679.00	487.50	492.11	492.11	493.37	0.047784	9.02	75.36	30.13	1.00
Reach-1	1973	10yr	257.00	488.58	491.79		491.79	0.000013	0.29	904.21	290.41	0.03
Reach-1	1973	50yr	386.00	488.58	491.97		491.97	0.000024	0.41	955.18	291.56	0.04
Reach-1	1973	100yr	486.00	488.58	492.06		492.07	0.000035	0.50	983.21	292.42	0.05
Reach-1	1973	500yr	679.00	488.58	492.27		492.27	0.000056	0.66	1043.77	294.25	0.06
Reach-1	1917	10yr	260.00	489.00	491.57	491.57	491.77	0.026164	5.21	95.95	216.72	0.73
Reach-1	1917	50yr	398.00	489.00	491.71	491.71	491.94	0.028610	5.79	129.01	238.21	0.78
Reach-1	1917	100yr	478.00	489.00	491.74	491.74	492.03	0.035162	6.50	137.12	243.20	0.87
Reach-1	1917	500yr	692.00	489.00	491.95	491.95	492.23	0.032279	6.72	194.34	303.52	0.85
Reach-1	1716	10yr	260.00	478.80	480.14		480.20	0.008519	2.01	129.42	128.02	0.35
Reach-1	1716	50yr	398.00	478.80	480.18		480.31	0.017369	2.95	135.10	129.34	0.50
Reach-1	1716	100yr	478.00	478.80	480.55		480.65	0.009338	2.63	184.52	140.27	0.38
Reach-1	1716	500yr	692.00	478.80	481.79		481.84	0.002180	1.92	380.38	173.00	0.21

HEC-RAS Plan: PrePro River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1622	10yr	271.00	476.80	478.00	478.00	478.35	0.068780	5.04	60.23	85.12	0.91
Reach-1	1622	50yr	418.00	476.80	478.93		479.06	0.011545	3.24	148.49	105.44	0.42
Reach-1	1622	100yr	477.00	476.80	480.26		480.30	0.001811	1.84	307.53	131.74	0.18
Reach-1	1622	500yr	652.00	476.80	481.69		481.72	0.000779	1.54	514.15	157.46	0.13
Reach-1	1563	10yr	271.00	474.30	477.12		477.20	0.006768	2.54	126.60	96.73	0.32
Reach-1	1563	50yr	418.00	474.30	478.85		478.88	0.001139	1.58	323.68	130.90	0.15
Reach-1	1563	100yr	477.00	474.30	480.24		480.26	0.000383	1.14	524.68	156.61	0.09
Reach-1	1563	500yr	652.00	474.30	481.68		481.69	0.000244	1.07	763.30	175.19	0.07
Reach-1	1513	10yr	271.00	474.00	476.79		476.88	0.006234	2.71	118.55	78.51	0.32
Reach-1	1513	50yr	418.00	474.00	478.79		478.83	0.001020	1.67	319.52	120.48	0.14
Reach-1	1513	100yr	477.00	474.00	480.22		480.24	0.000373	1.22	510.61	147.20	0.09
Reach-1	1513	500yr	652.00	474.00	481.67		481.68	0.000255	1.17	743.41	175.33	0.08
Reach-1	1422	10yr	271.00	471.64	476.52		476.57	0.002071	2.31	174.97	89.00	0.20
Reach-1	1422	50yr	418.00	471.64	478.74		478.76	0.000485	1.48	417.13	128.04	0.10
Reach-1	1422	100yr	477.00	471.64	480.20		480.21	0.000214	1.13	619.10	149.19	0.07
Reach-1	1422	500yr	652.00	471.64	481.65		481.66	0.000168	1.12	851.24	170.89	0.06
Reach-1	1284	10yr	271.00	472.20	476.44		476.45	0.000472	1.02	324.24	137.13	0.09
Reach-1	1284	50yr	418.00	472.20	478.72		478.73	0.000139	0.76	712.52	200.73	0.06
Reach-1	1284	100yr	477.00	472.20	480.19		480.20	0.000067	0.61	1036.24	238.99	0.04
Reach-1	1284	500yr	652.00	472.20	481.64		481.65	0.000054	0.62	1407.56	272.11	0.04
Reach-1	1202	10yr	269.00	469.60	476.38	472.78	476.41	0.000407	1.51	211.29	165.51	0.11
Reach-1	1202	50yr	375.00	469.60	478.69	473.25	478.71	0.000190	1.31	329.12	253.51	0.08
Reach-1	1202	100yr	431.00	469.60	480.16	473.46	480.18	0.000128	1.20	404.43	288.13	0.07
Reach-1	1202	500yr	548.00	469.60	481.62	473.87	481.64	0.000119	1.28	478.42	316.31	0.07
Reach-1	1119.5		Culvert									
Reach-1	1076	10yr	269.00	469.20	472.81	472.81	474.61	0.023811	10.75	25.02	82.43	1.00
Reach-1	1076	50yr	375.00	469.20	473.70	473.70	475.94	0.022081	12.00	31.24	120.98	1.00
Reach-1	1076	100yr	431.00	469.20	474.14	474.14	476.60	0.021346	12.56	34.31	138.88	1.00
Reach-1	1076	500yr	548.00	469.20	474.90	474.90	475.08	0.002560	4.79	190.24	165.71	0.35
Reach-1	1026	10yr	269.00	468.01	470.55		470.84	0.008148	4.61	67.07	40.86	0.54

HEC-RAS Plan: PrePro River: RIVER-1 Reach: Reach-1 (Continued)

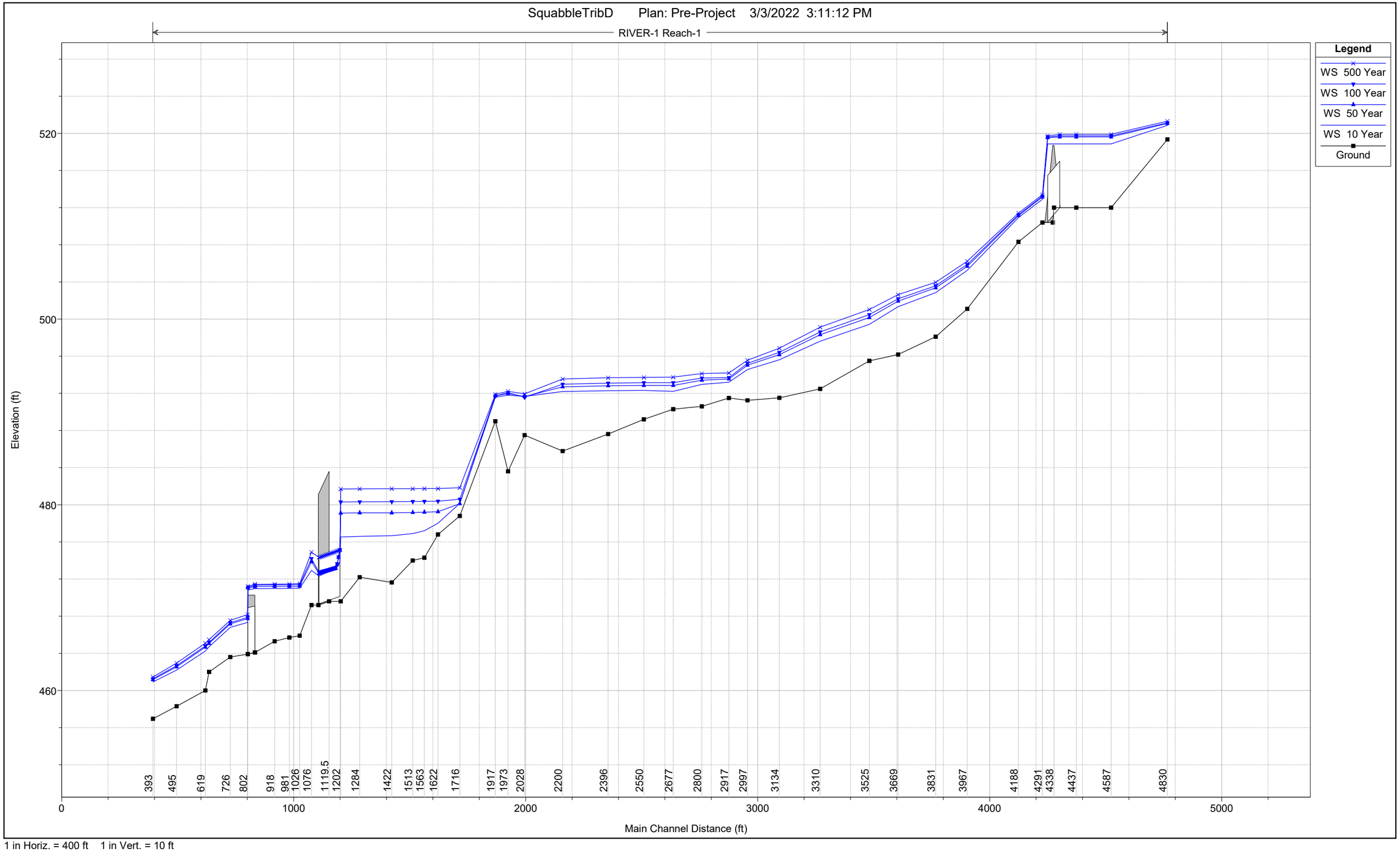
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1026	50yr	375.00	468.01	471.06		471.40	0.007356	5.02	89.94	49.60	0.53
Reach-1	1026	100yr	431.00	468.01	471.28		471.65	0.007386	5.29	102.34	60.78	0.54
Reach-1	1026	500yr	548.00	468.01	471.77		472.13	0.006299	5.40	135.07	74.70	0.51
Reach-1	981	10yr	269.00	466.62	470.21		470.53	0.006361	5.10	69.91	40.24	0.50
Reach-1	981	50yr	375.00	466.62	470.72		471.09	0.006509	5.69	92.99	51.58	0.52
Reach-1	981	100yr	431.00	466.62	470.96		471.34	0.006384	5.87	106.17	56.75	0.52
Reach-1	981	500yr	548.00	466.62	471.45		471.85	0.006103	6.20	137.31	72.90	0.52
Reach-1	918	10yr	269.00	466.33	468.92	468.92	469.74	0.028085	7.33	38.32	25.93	0.96
Reach-1	918	50yr	375.00	466.33	469.37	469.37	470.32	0.024711	7.97	51.00	30.52	0.93
Reach-1	918	100yr	431.00	466.33	469.58	469.58	470.59	0.023794	8.29	57.53	33.49	0.93
Reach-1	918	500yr	548.00	466.33	469.89	469.89	471.09	0.024617	9.12	68.90	39.29	0.96
Reach-1	833	10yr	272.00	464.91	466.89	466.65	467.31	0.027049	5.35	53.41	38.55	0.72
Reach-1	833	50yr	381.00	464.91	467.47	466.98	467.87	0.017667	5.26	77.05	41.93	0.61
Reach-1	833	100yr	435.00	464.91	467.71	467.12	468.11	0.015799	5.31	87.02	42.81	0.59
Reach-1	833	500yr	551.00	464.91	468.13	467.42	468.57	0.013973	5.53	105.25	44.49	0.57
Reach-1	817.5		Culvert									
Reach-1	802	10yr	272.00	464.24	467.04	465.67	467.13	0.004201	2.47	110.21	61.19	0.28
Reach-1	802	50yr	381.00	464.24	467.48	465.93	467.61	0.004704	2.93	130.42	63.80	0.31
Reach-1	802	100yr	435.00	464.24	467.66	466.05	467.81	0.004994	3.14	138.70	64.90	0.32
Reach-1	802	500yr	551.00	464.24	467.97	466.29	468.17	0.005774	3.60	153.04	66.86	0.35
Reach-1	726	10yr	272.00	462.44	466.53		466.77	0.013324	4.39	78.09	54.33	0.44
Reach-1	726	50yr	381.00	462.44	466.93		467.21	0.014147	4.91	101.82	69.81	0.46
Reach-1	726	100yr	435.00	462.44	467.09		467.39	0.014472	5.12	114.62	80.77	0.47
Reach-1	726	500yr	551.00	462.44	467.40		467.73	0.014522	5.42	141.16	88.40	0.48
Reach-1	635	10yr	272.00	462.11	465.30		465.51	0.014316	4.09	82.83	61.78	0.45
Reach-1	635	50yr	381.00	462.11	465.77		465.99	0.012398	4.27	114.92	74.45	0.43
Reach-1	635	100yr	435.00	462.11	465.96		466.18	0.011988	4.37	129.07	78.40	0.43
Reach-1	635	500yr	551.00	462.11	466.31		466.54	0.011437	4.57	157.45	85.54	0.43
Reach-1	619	10yr	272.00	461.54	464.89	464.10	465.25	0.019001	5.02	63.01	41.89	0.53
Reach-1	619	50yr	381.00	461.54	465.31	464.70	465.74	0.020157	5.67	83.70	56.89	0.56

HEC-RAS Plan: PrePro River: RIVER-1 Reach: Reach-1 (Continued)

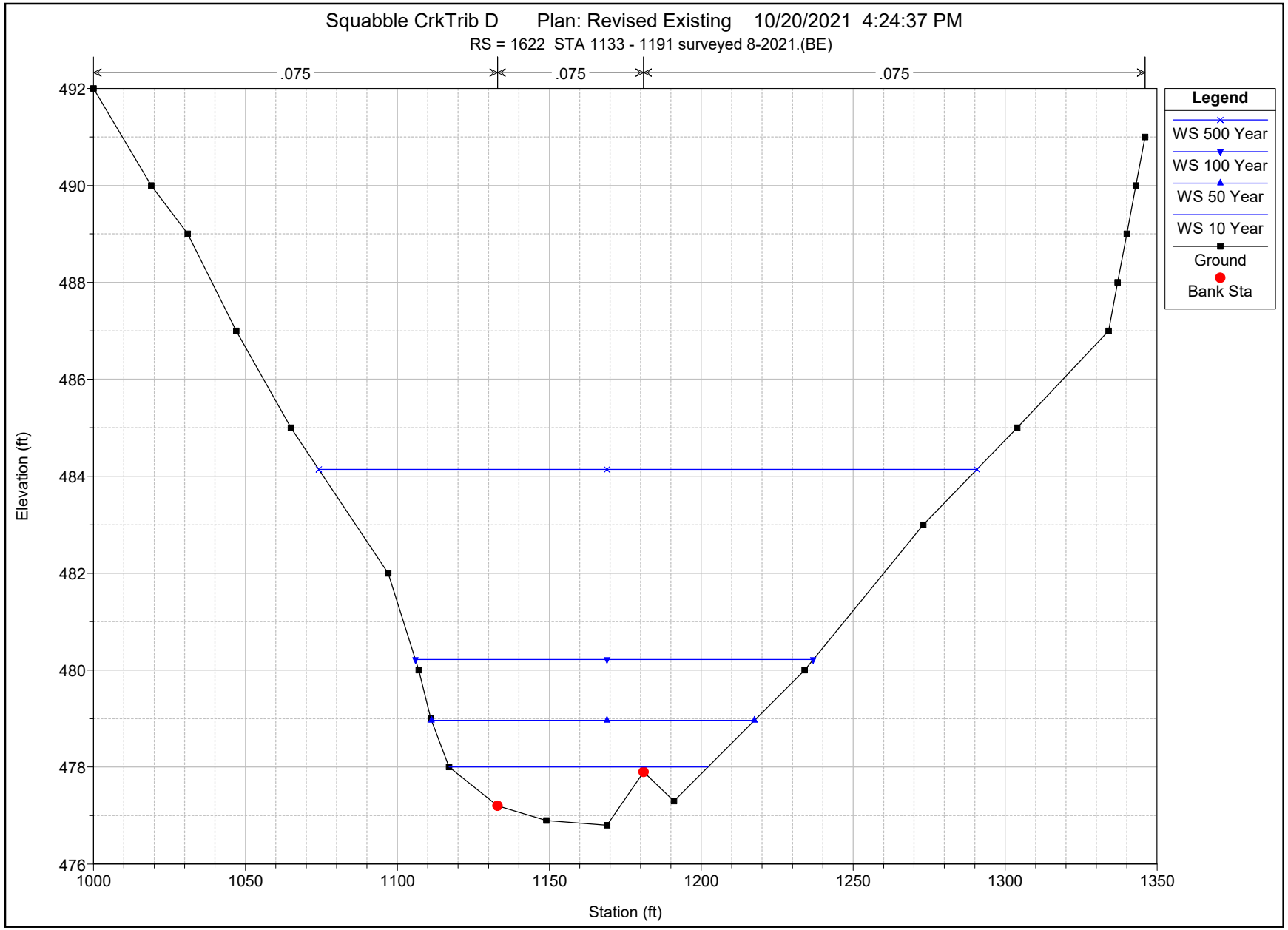
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	619	100yr	435.00	461.54	465.47	464.86	465.93	0.020659	5.93	93.35	62.12	0.57
Reach-1	619	500yr	551.00	461.54	465.39	465.39	466.20	0.037367	7.85	88.45	59.65	0.76
Reach-1	495	10yr	369.00	459.66	461.52	461.52	462.17	0.085097	6.45	57.34	51.90	0.99
Reach-1	495	50yr	524.00	459.66	461.88	461.88	462.67	0.075528	7.14	74.31	56.05	0.98
Reach-1	495	100yr	594.00	459.66	462.03	462.03	462.88	0.072303	7.40	81.84	59.03	0.97
Reach-1	495	500yr	749.00	459.66	462.90	462.34	463.46	0.029453	6.13	126.39	69.80	0.66
Reach-1	400		Culvert									
Reach-1	393	10yr	369.00	458.16	460.96	460.96	461.66	0.054951	7.33	58.69	41.27	0.87
Reach-1	393	50yr	524.00	458.16	461.36	461.36	462.20	0.053649	8.09	75.67	43.86	0.88
Reach-1	393	100yr	594.00	458.16	461.51	461.51	462.43	0.054301	8.44	82.25	44.85	0.89
Reach-1	393	500yr	749.00	458.16	461.85	461.85	462.87	0.052576	8.97	97.89	47.23	0.90

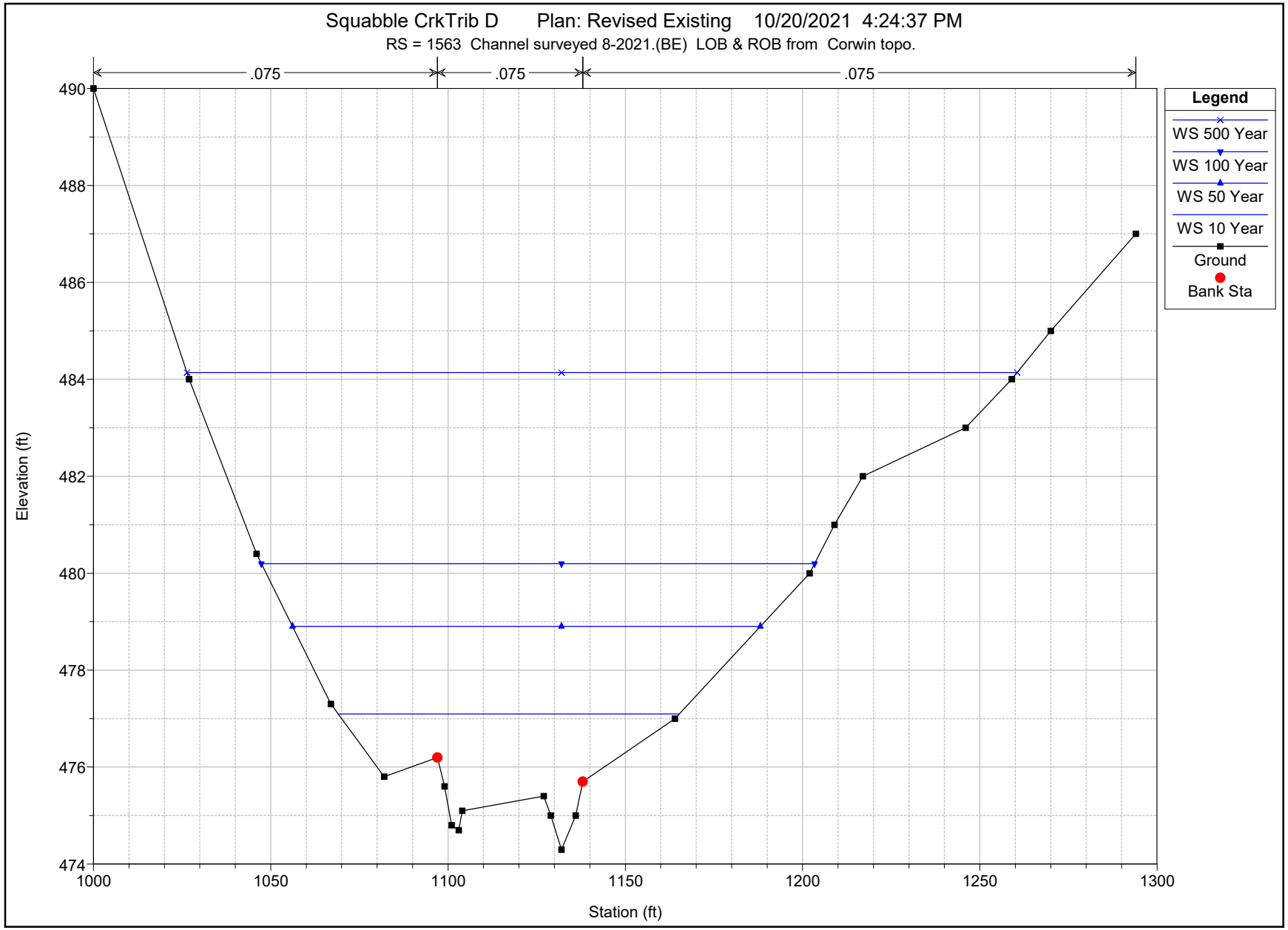
SquabbleTribD Plan: Pre-Project 3/3/2022 3:11:12 PM

RIVER-1 Reach-1



1 in Horiz. = 400 ft 1 in Vert. = 10 ft


Squabble CrkTrib D Plan: Revised Existing 10/20/2021 4:24:37 PM
RS = 1622 STA 1133 - 1191 surveyed 8-2021.(BE)
.075
.075
.075
Legend
WS 500 Year
WS 100 Year
WS 50 Year
WS 10 Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
492
490
488
486
484
482
480
478
476
1000
1050
1100
1150
1200
1250
1300
1350


Squabble CrkTrib D Plan: Revised Existing 10/20/2021 4:24:37 PM
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.075
.075
.075
Legend
WS 500 Year
WS 100 Year
WS 50 Year
WS 10 Year
Ground
Bank Sta
Elevation (ft)
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484
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480
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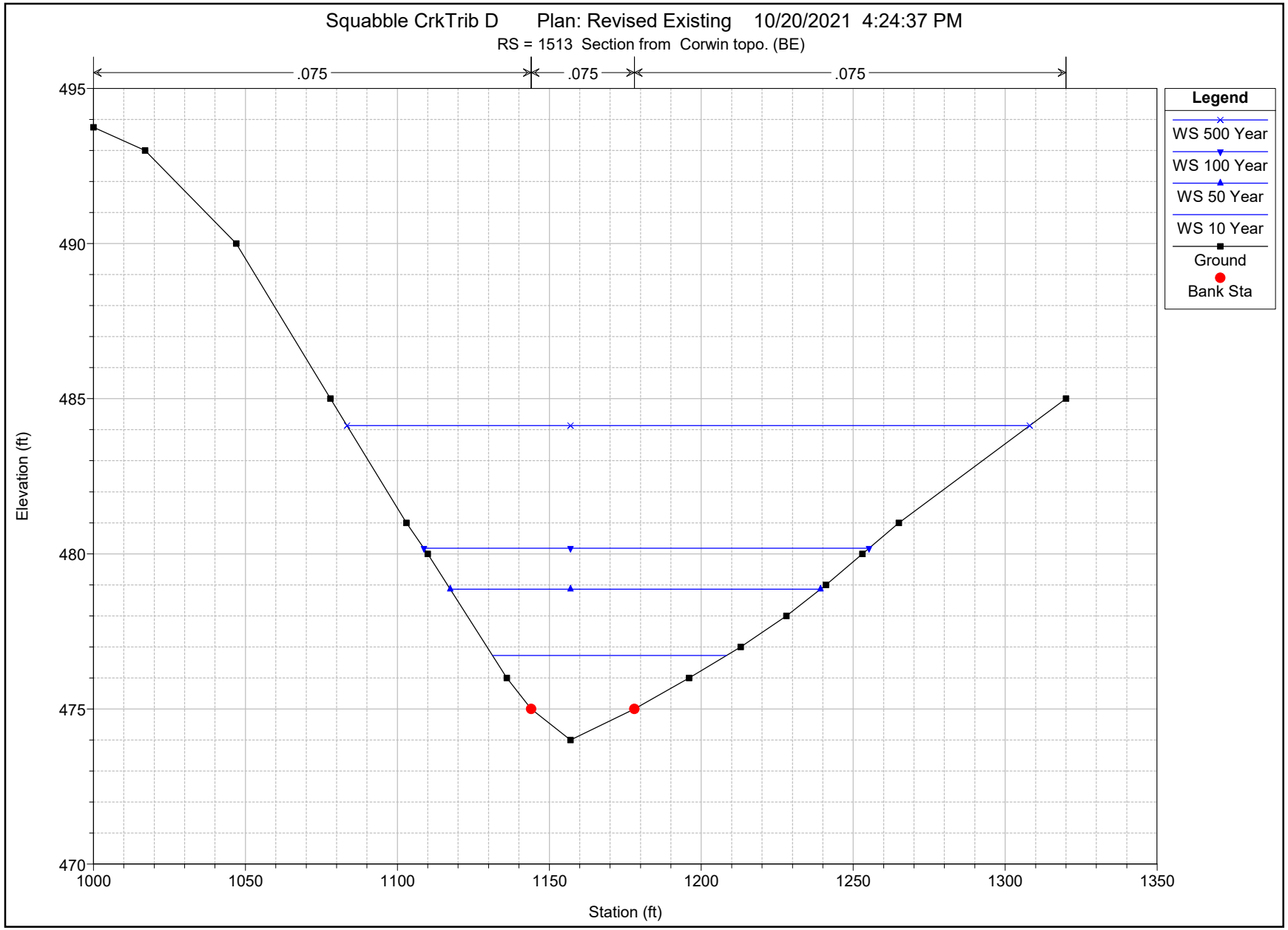
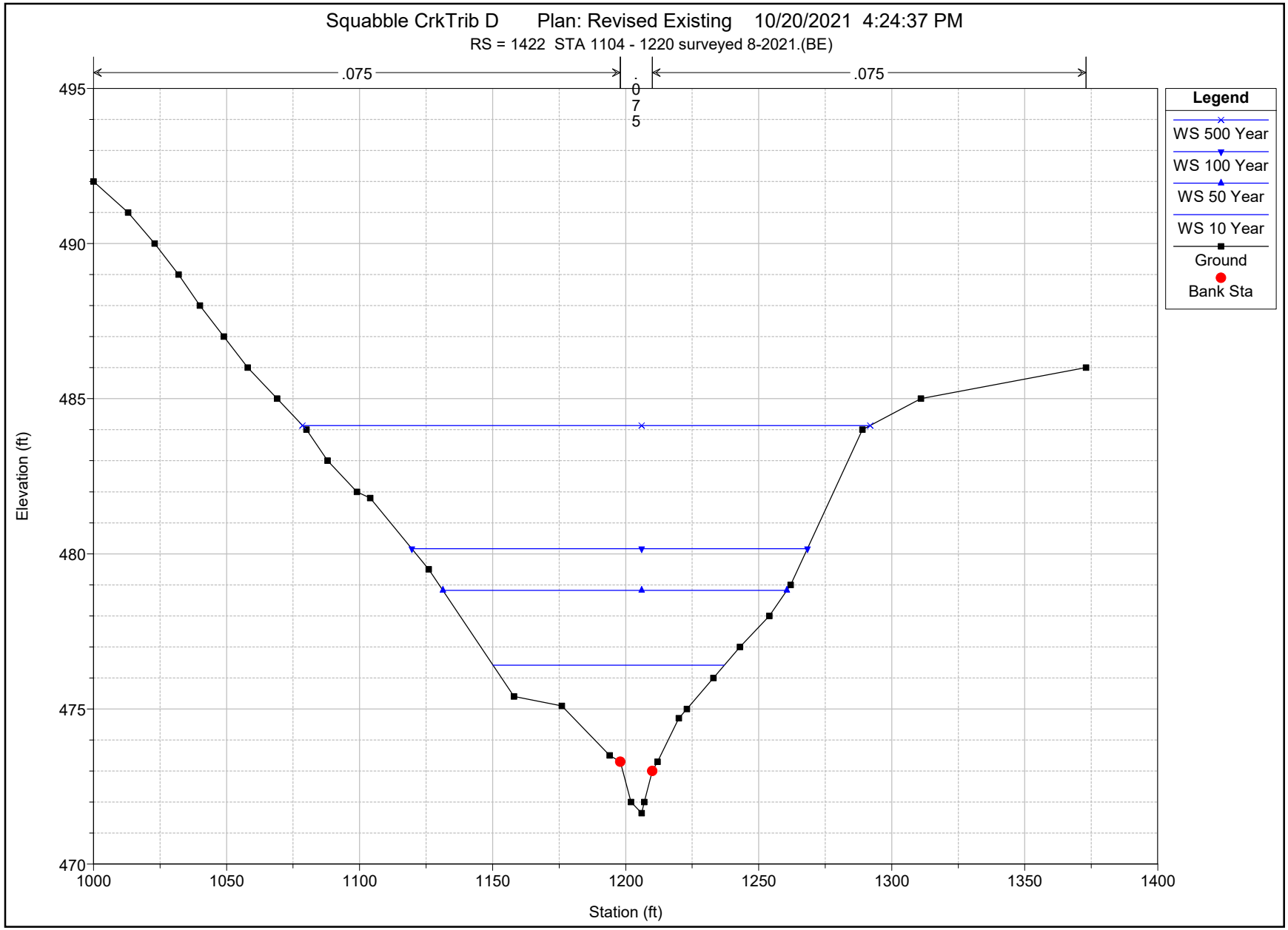
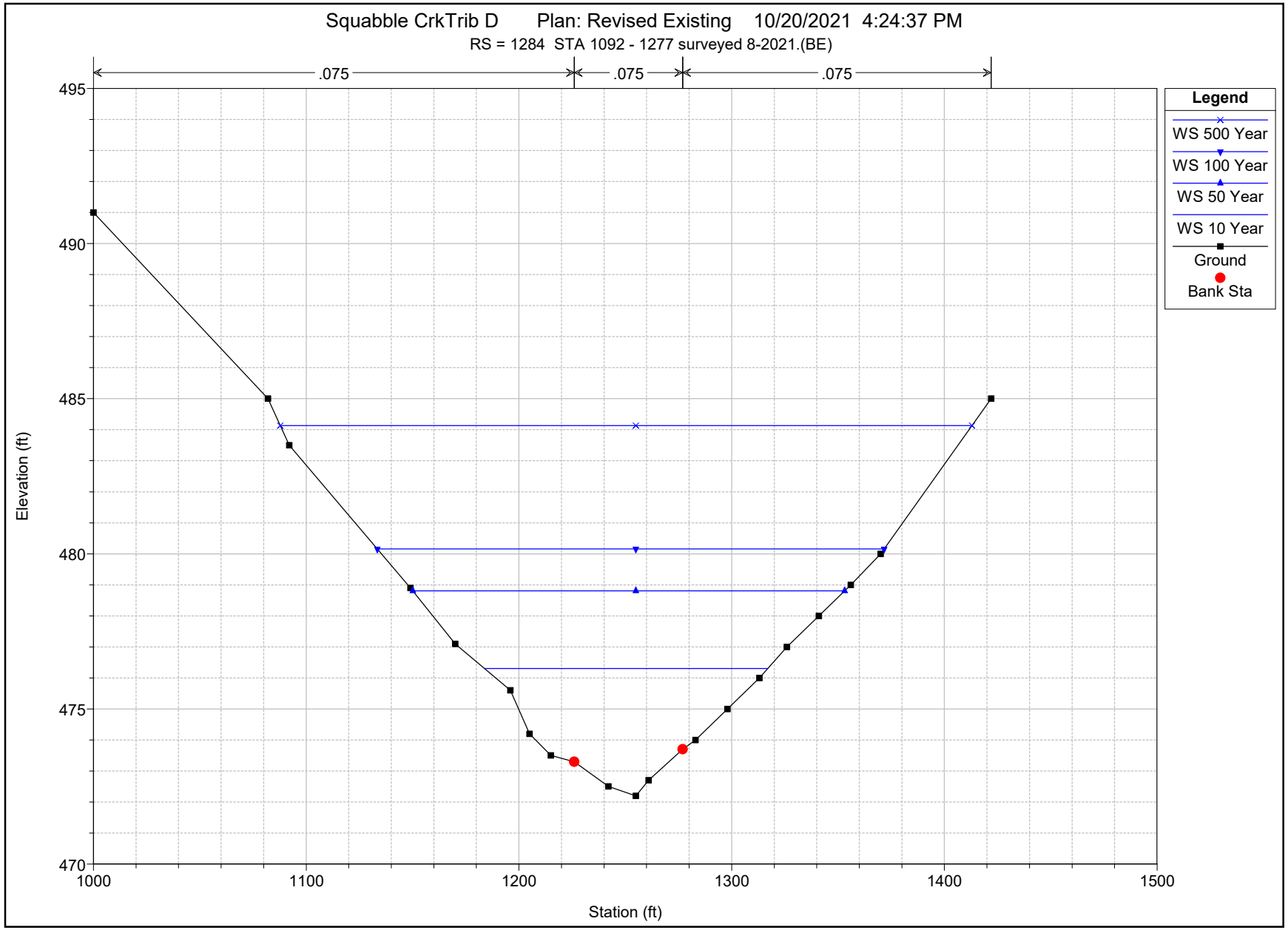
1100
1150
1200
1250
1300
Station (ft)


Squabble CrkTrib D Plan: Revised Existing 10/20/2021 4:24:37 PM
RS = 1513 Section from Corwin topo. (BE)
.075
.075
.075
Legend
WS 500 Year
WS 100 Year
WS 50 Year
WS 10 Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
495
490
485
480
475
470
1000
1050
1100
1150
1200
1250
1300
1350


Squabble CrkTrib D Plan: Revised Existing 10/20/2021 4:24:37 PM
RS = 1422 STA 1104 - 1220 surveyed 8-2021.(BE)
.075
.075
.075
Legend
WS 500 Year
WS 100 Year
WS 50 Year
WS 10 Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
495
490
485
480
475
470
1000
1050
1100
1150
1200
1250
1300
1350
1400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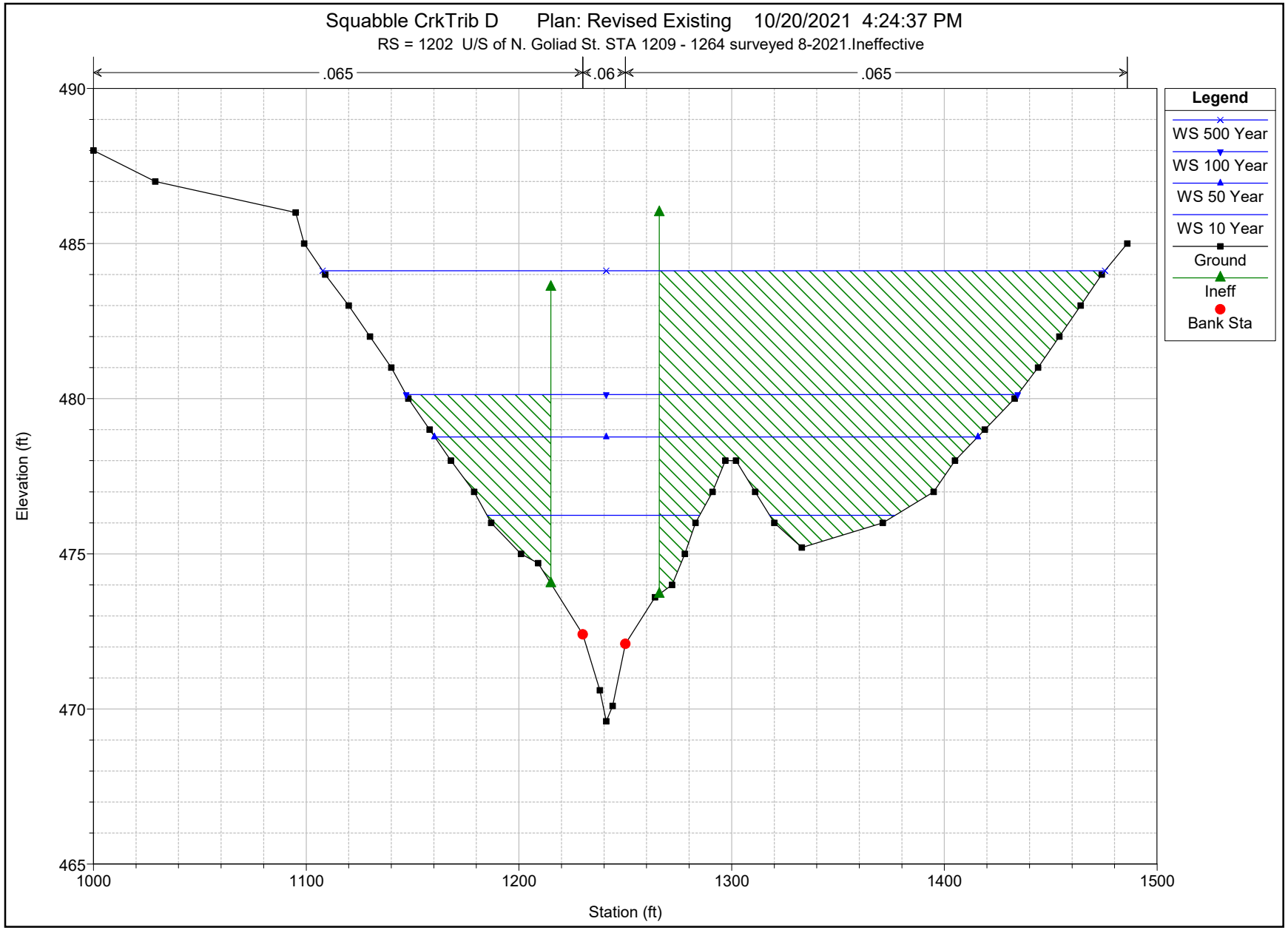
.075
.075
.075
Legend
WS 500 Year
WS 100 Year
WS 50 Year
WS 10 Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
495
490
485
480
475
470
1000
1100
1200
1300
1400
1500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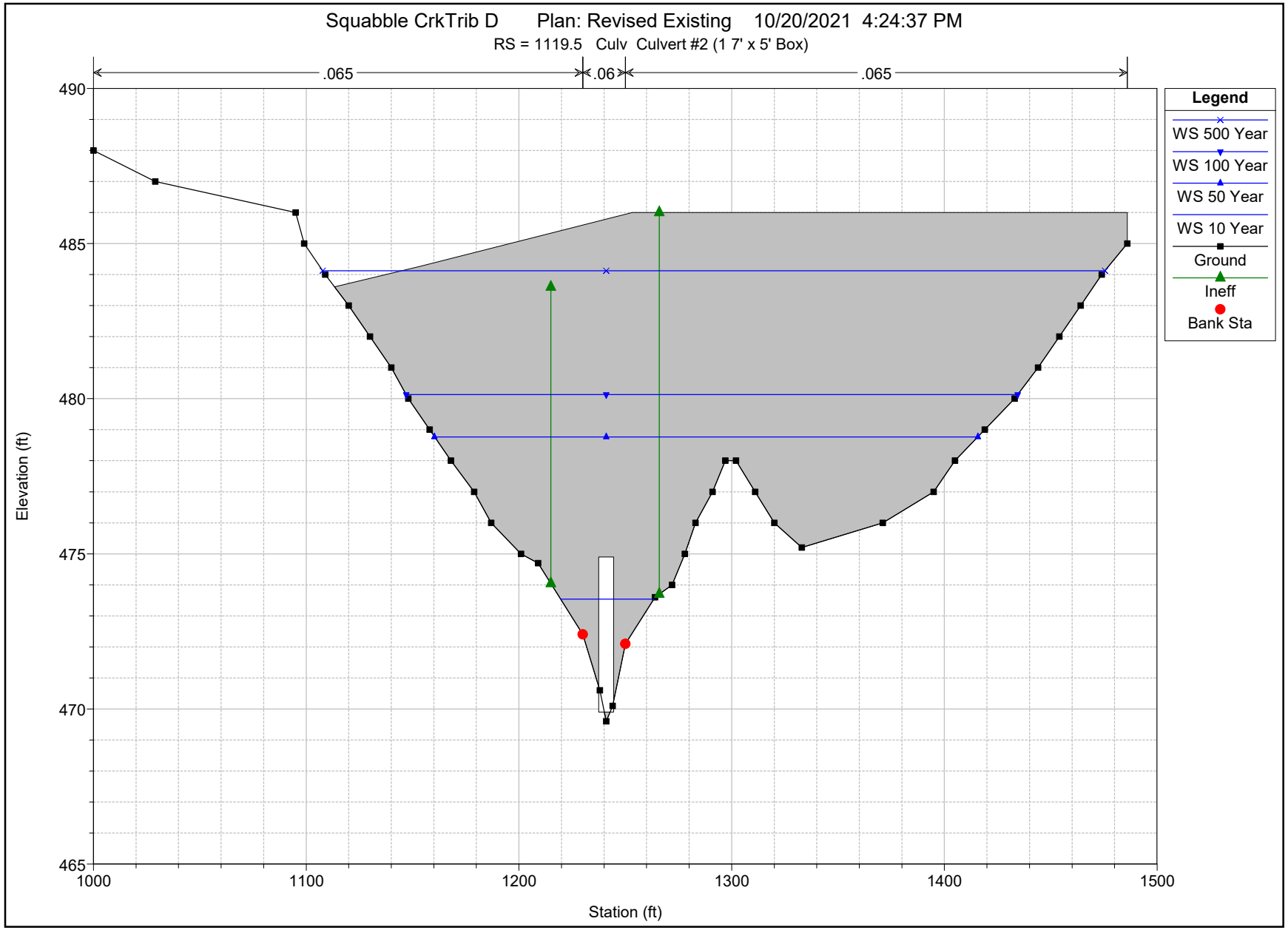
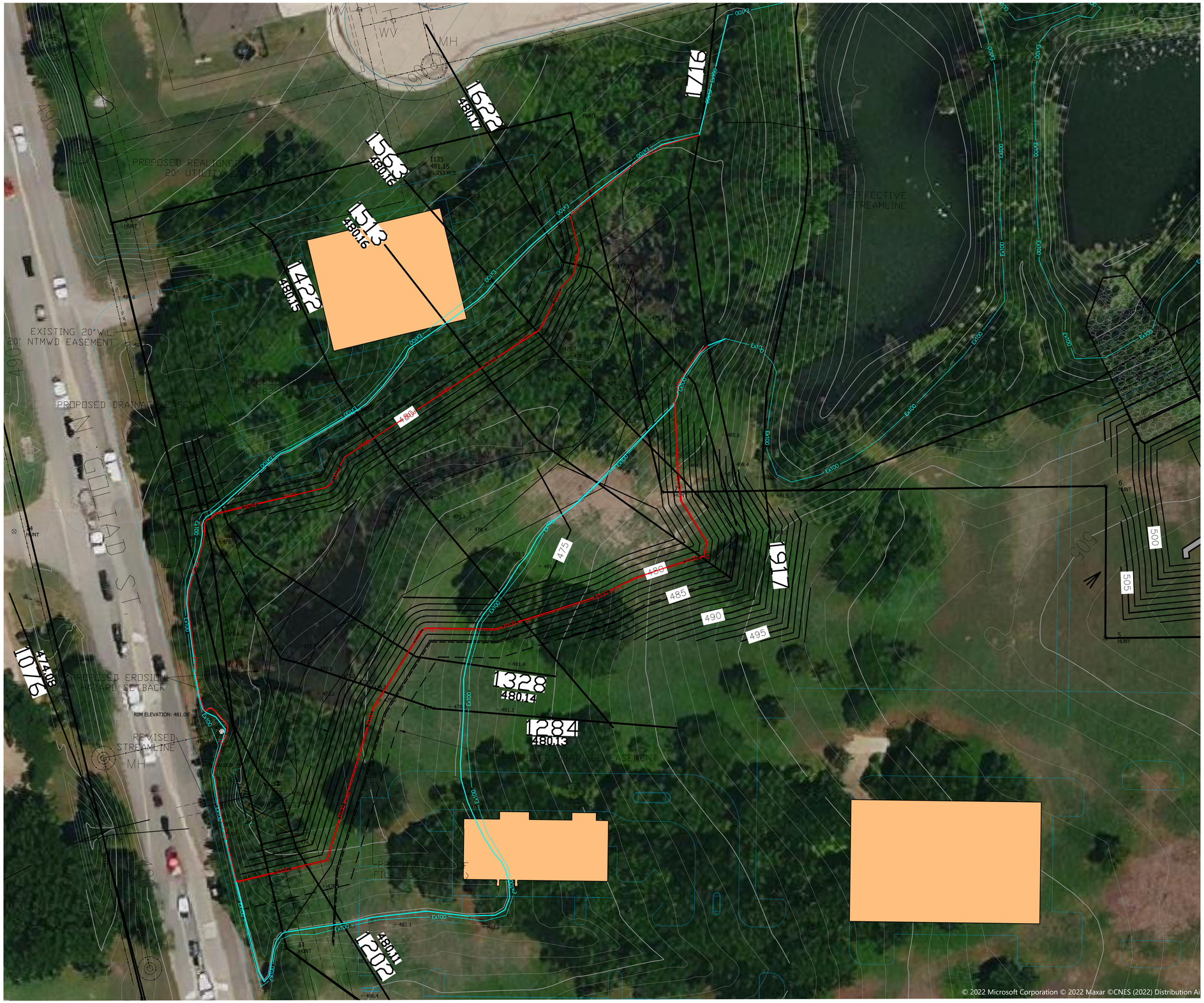
RS = 1202 U/S of N. Goliad St. STA 1209 - 1264 surveyed 8-2021.Ineffective
.065
.06
.065
Legend
WS 500 Year
WS 100 Year
WS 50 Year
WS 10 Year
Ground
Ineff
Bank Sta
Elevation (ft)
490
485
480
475
470
465
1000
1100
1200
1300
1400
1500
Station (ft)


Squabble CrkTrib D Plan: Revised Existing 10/20/2021 4:24:37 PM
RS = 1119.5 Culv Culvert #2 (1 7' x 5' Box)
.065
.06
.065
490
485
480
475
470
465
Elevation (ft)
1000
1100
1200
1300
1400
1500
Station (ft)
Legend
WS 500 Year
WS 100 Year
WS 50 Year
WS 10 Year
Ground
Ineff
Bank Sta



N

GRAPHIC SCALE

30 0 15 30 60

(IN FEET)
1 inch = 30 ft.

LEGEND

631	EXISTING CONTOUR
	INEFFECTIVE FLOW LIMIT
EF100	EFFECTIVE 100-YEAR FLOODPLAIN
P100	PROPOSED 100-YEAR FLOODPLAIN
P100	PROPOSED ULT 100YR FLOODPLAIN

BENCHMARKS

BM#1:
CITY OF ROCKWALL MONUMENT 14
NAVD88
ELEV.=497.13

BANNISTER ENGINEERING
240 N. Mitchell Road | Mansfield, TX 76063 | 817.842.2094 | 817.842.2095 fax
REGISTRATION # F-10599 (TEXAS)

STONE CREEK RETAIL

ROCKWALL, TEXAS

PROPOSED HYDRAULIC WORK MAP

No.	Date	Revision Description

PROJECT NO.: 262-21-001

STATE OF TEXAS
MICHAEL J. MOORE
128498
LICENSED PROFESSIONAL ENGINEER

3/15/2022

SHEET NUMBER

16

File: B:\Clients\262 (DuWest)\262-21-001 (Stone Creek Retail - Rockwall)\Flood Study\Hydraulic Work Map 262-21-001.dwg || Date Plotted: 3/15/2022 3:26 PM || Plotted By: mmoore

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	4830	10 Year	282.80	519.35	520.87	520.87	521.29	0.025442	5.22	54.13	65.25	1.01
Reach-1	4830	50 Year	380.30	519.35	521.06	521.06	521.56	0.024427	5.65	67.39	72.18	1.02
Reach-1	4830	100 Year	428.80	519.35	521.15	521.15	521.68	0.023297	5.84	73.74	75.26	1.01
Reach-1	4830	500 Year	532.40	519.35	521.32	521.32	521.92	0.021548	6.21	87.15	81.38	0.99
Reach-1	4587	10 Year	282.80	513.00	518.86		518.87	0.000044	0.69	430.47	117.28	0.06
Reach-1	4587	50 Year	380.30	513.00	519.62		519.63	0.000047	0.78	525.32	135.41	0.06
Reach-1	4587	100 Year	428.80	513.00	519.73		519.74	0.000055	0.86	540.77	138.23	0.06
Reach-1	4587	500 Year	532.40	513.00	519.89		519.91	0.000076	1.03	563.88	142.35	0.08
Reach-1	4437	10 Year	221.00	513.00	518.87	513.47	518.87	0.000005	0.24	926.41	201.01	0.02
Reach-1	4437	50 Year	335.20	513.00	519.62	513.61	519.62	0.000008	0.31	1083.55	217.60	0.02
Reach-1	4437	100 Year	390.40	513.00	519.73	513.68	519.73	0.000010	0.35	1108.31	220.27	0.03
Reach-1	4437	500 Year	493.30	513.00	519.90	513.80	519.90	0.000014	0.43	1145.06	224.17	0.03
Reach-1	4338		Culvert									
Reach-1	4291	10 Year	272.80	510.40	512.89	512.89	513.25	0.028885	5.18	66.91	100.17	0.83
Reach-1	4291	50 Year	409.00	510.40	513.15	513.15	513.54	0.028737	5.59	95.01	113.44	0.84
Reach-1	4291	100 Year	479.10	510.40	513.25	513.25	513.66	0.029747	5.86	105.98	116.21	0.87
Reach-1	4291	500 Year	623.10	510.40	513.41	513.41	513.90	0.032533	6.42	124.98	120.85	0.92
Reach-1	4188	10 Year	272.80	508.32	510.93	510.68	511.05	0.017514	3.45	106.19	127.12	0.47
Reach-1	4188	50 Year	409.00	508.32	511.15	510.83	511.31	0.019117	3.91	134.76	130.67	0.50
Reach-1	4188	100 Year	479.10	508.32	511.24	510.92	511.42	0.020174	4.15	146.88	132.32	0.52
Reach-1	4188	500 Year	623.10	508.32	511.41	511.06	511.63	0.021960	4.57	169.63	135.38	0.55
Reach-1	3967	10 Year	272.80	501.10	505.24	505.24	505.74	0.036683	6.03	55.71	58.76	0.68
Reach-1	3967	50 Year	409.00	501.10	505.69	505.59	506.16	0.031380	6.25	85.16	73.06	0.65
Reach-1	3967	100 Year	479.10	501.10	505.89	505.74	506.34	0.028808	6.26	100.58	79.53	0.63
Reach-1	3967	500 Year	623.10	501.10	506.23		506.67	0.025430	6.31	128.62	85.54	0.60
Reach-1	3831	10 Year	272.80	498.10	502.86		503.01	0.011138	3.28	88.38	45.66	0.38
Reach-1	3831	50 Year	409.00	498.10	503.37		503.57	0.012865	3.81	114.80	55.84	0.41
Reach-1	3831	100 Year	479.10	498.10	503.58		503.81	0.013304	4.07	126.49	58.50	0.43
Reach-1	3831	500 Year	623.10	498.10	503.96		504.24	0.013766	4.51	150.16	63.54	0.44
Reach-1	3669	10 Year	272.80	496.18	501.34		501.49	0.009474	3.50	97.14	66.90	0.36

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	3669	50 Year	409.00	496.18	501.93		502.08	0.008351	3.54	138.10	71.48	0.34
Reach-1	3669	100 Year	479.10	496.18	502.19		502.34	0.007954	3.61	156.49	74.02	0.34
Reach-1	3669	500 Year	623.10	496.18	502.64		502.81	0.007470	3.79	191.09	78.93	0.34
Reach-1	3525	10 Year	272.80	495.50	499.43		499.78	0.021679	4.75	58.19	30.05	0.56
Reach-1	3525	50 Year	409.00	495.50	500.17		500.57	0.019240	5.14	84.12	40.85	0.54
Reach-1	3525	100 Year	479.10	495.50	500.48		500.89	0.018499	5.30	97.52	46.09	0.54
Reach-1	3525	500 Year	623.10	495.50	501.03		501.46	0.017060	5.51	125.54	55.36	0.53
Reach-1	3310	10 Year	272.80	492.48	497.61		497.71	0.005232	2.53	107.87	42.71	0.28
Reach-1	3310	50 Year	409.00	492.48	498.32		498.46	0.005731	2.91	140.53	49.72	0.30
Reach-1	3310	100 Year	479.10	492.48	498.62		498.77	0.005955	3.09	155.64	53.10	0.31
Reach-1	3310	500 Year	623.10	492.48	499.13		499.31	0.006414	3.42	184.32	59.50	0.33
Reach-1	3134	10 Year	272.80	491.51	495.61		495.98	0.023895	4.98	58.90	36.49	0.58
Reach-1	3134	50 Year	409.00	491.51	496.17		496.61	0.024250	5.57	81.76	45.51	0.60
Reach-1	3134	100 Year	479.10	491.51	496.42		496.88	0.024163	5.79	93.28	49.58	0.60
Reach-1	3134	500 Year	623.10	491.51	496.87		497.37	0.023271	6.08	117.44	57.20	0.60
Reach-1	2997	10 Year	303.70	491.25	494.56		494.64	0.004711	2.37	138.05	74.88	0.27
Reach-1	2997	50 Year	452.40	491.25	495.04		495.14	0.005251	2.81	174.98	81.53	0.29
Reach-1	2997	100 Year	530.10	491.25	495.24		495.37	0.005483	3.01	192.10	84.62	0.30
Reach-1	2997	500 Year	691.20	491.25	495.56		495.72	0.006290	3.44	220.04	89.43	0.33
Reach-1	2917	10 Year	303.70	491.50	493.20	493.20	493.72	0.062827	6.20	55.28	55.23	0.91
Reach-1	2917	50 Year	452.40	491.50	493.55	493.55	494.16	0.058026	6.86	75.79	63.63	0.90
Reach-1	2917	100 Year	530.10	491.50	493.70	493.70	494.36	0.056110	7.14	86.06	67.44	0.90
Reach-1	2917	500 Year	691.20	491.50	494.20		494.75	0.036216	6.67	122.54	79.52	0.75
Reach-1	2800	10 Year	303.70	490.60	492.98		493.00	0.001201	1.24	250.40	138.69	0.16
Reach-1	2800	50 Year	452.40	490.60	493.42		493.45	0.001325	1.49	312.59	144.40	0.17
Reach-1	2800	100 Year	530.10	490.60	493.65		493.69	0.001313	1.58	347.06	147.47	0.17
Reach-1	2800	500 Year	691.20	490.60	494.14		494.18	0.001236	1.72	419.93	153.76	0.17
Reach-1	2677	10 Year	303.70	490.30	492.21	492.15	492.55	0.032671	5.55	73.29	86.01	0.78
Reach-1	2677	50 Year	452.40	490.30	492.85		493.05	0.013683	4.51	135.96	110.28	0.54
Reach-1	2677	100 Year	530.10	490.30	493.15		493.33	0.009900	4.19	171.01	119.22	0.47
Reach-1	2677	500 Year	691.20	490.30	493.74		493.88	0.005963	3.74	244.98	131.60	0.37

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	2550	10 Year	303.70	489.63	492.32		492.34	0.000270	1.16	303.29	144.05	0.13
Reach-1	2550	50 Year	452.40	489.63	492.86		492.89	0.000305	1.39	384.05	155.11	0.14
Reach-1	2550	100 Year	530.10	489.63	493.14		493.17	0.000306	1.48	429.02	161.23	0.14
Reach-1	2550	500 Year	691.20	489.63	493.72		493.75	0.000297	1.61	525.05	174.12	0.14
Reach-1	2396	10 Year	270.70	489.63	492.28		492.30	0.000248	1.05	270.77	124.71	0.12
Reach-1	2396	50 Year	416.40	489.63	492.81		492.84	0.000306	1.31	339.70	134.32	0.14
Reach-1	2396	100 Year	484.70	489.63	493.10		493.13	0.000303	1.38	382.92	227.01	0.14
Reach-1	2396	500 Year	628.80	489.63	493.68		493.71	0.000268	1.45	517.24	237.64	0.13
Reach-1	2200	10 Year	270.70	489.63	492.19		492.23	0.000539	1.49	183.10	82.84	0.17
Reach-1	2200	50 Year	416.40	489.63	492.70		492.75	0.000670	1.87	225.78	86.47	0.20
Reach-1	2200	100 Year	484.70	489.63	492.98		493.04	0.000663	1.97	250.48	88.51	0.20
Reach-1	2200	500 Year	628.80	489.63	493.56		493.63	0.000616	2.11	326.36	240.58	0.20
Reach-1	2028	10 Year	270.70	487.50	491.66		491.96	0.013208	4.35	62.34	28.40	0.52
Reach-1	2028	50 Year	416.40	487.50	491.65		492.35	0.031961	6.74	61.86	28.33	0.80
Reach-1	2028	100 Year	484.70	487.50	491.58	491.54	492.60	0.047555	8.09	59.92	28.06	0.98
Reach-1	2028	500 Year	628.80	487.50	491.96	491.96	493.18	0.049168	8.89	70.78	29.53	1.01
Reach-1	1973	10 Year	270.70	488.58	491.81		491.81	0.000014	0.30	908.58	290.49	0.03
Reach-1	1973	50 Year	416.40	488.58	491.99		491.99	0.000028	0.44	961.51	291.76	0.04
Reach-1	1973	100 Year	484.70	488.58	492.07		492.08	0.000034	0.50	986.86	292.53	0.05
Reach-1	1973	500 Year	628.80	488.58	492.21		492.22	0.000051	0.62	1027.78	293.77	0.06
Reach-1	1917	10 Year	270.70	489.00	491.58	491.58	491.78	0.026535	5.28	98.52	218.46	0.74
Reach-1	1917	50 Year	416.40	489.00	491.72	491.72	491.96	0.029801	5.93	131.47	239.74	0.80
Reach-1	1917	100 Year	484.70	489.00	491.74	491.74	492.04	0.037775	6.71	134.85	241.82	0.90
Reach-1	1917	500 Year	628.80	489.00	491.90	491.90	492.18	0.033371	6.69	177.20	287.74	0.86
Reach-1	1716	10 Year	270.70	478.80	480.16		480.22	0.008591	2.05	132.33	128.70	0.35
Reach-1	1716	50 Year	416.40	478.80	480.13		480.29	0.022367	3.25	128.49	127.81	0.56
Reach-1	1716	100 Year	484.70	478.80	480.60		480.70	0.008562	2.57	191.46	141.73	0.37
Reach-1	1716	500 Year	628.80	478.80	481.82		481.86	0.001727	1.72	385.73	173.75	0.18
Reach-1	1622	10 Year	279.70	476.80	478.01	478.01	478.37	0.069060	5.10	60.97	82.65	0.91
Reach-1	1622	50 Year	391.30	476.80	479.19		479.28	0.006118	2.58	165.95	94.63	0.31

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1622	100 Year	435.70	476.80	480.35		480.39	0.001467	1.68	281.25	104.78	0.16
Reach-1	1622	500 Year	551.50	476.80	481.74		481.77	0.000617	1.38	435.93	117.93	0.11
Reach-1	1563	10 Year	279.70	474.30	476.96		477.08	0.010076	2.93	113.27	99.90	0.38
Reach-1	1563	50 Year	391.30	474.30	479.16		479.18	0.000602	1.22	359.69	122.77	0.11
Reach-1	1563	100 Year	435.70	474.30	480.34		480.35	0.000251	0.93	511.17	134.75	0.07
Reach-1	1563	500 Year	551.50	474.30	481.74		481.75	0.000147	0.84	709.86	150.11	0.06
Reach-1	1513	10 Year	279.70	474.00	476.77		476.81	0.003089	1.90	199.53	162.82	0.22
Reach-1	1513	50 Year	391.30	474.00	479.16		479.17	0.000181	0.74	614.52	184.38	0.06
Reach-1	1513	100 Year	435.70	474.00	480.34		480.35	0.000084	0.59	838.79	195.38	0.04
Reach-1	1513	500 Year	551.50	474.00	481.74		481.74	0.000054	0.54	1121.03	208.44	0.04
Reach-1	1422	10 Year	279.70	471.64	476.69		476.70	0.000494	1.16	322.17	127.06	0.10
Reach-1	1422	50 Year	391.30	471.64	479.15		479.15	0.000102	0.71	659.36	147.47	0.05
Reach-1	1422	100 Year	435.70	471.64	480.33		480.34	0.000060	0.60	840.32	157.33	0.04
Reach-1	1422	500 Year	551.50	471.64	481.73		481.74	0.000045	0.58	1068.36	168.95	0.03
Reach-1	1328	10 Year	279.70	471.90	476.61		476.64	0.000994	1.64	232.05	99.56	0.14
Reach-1	1328	50 Year	391.30	471.90	479.13		479.14	0.000193	0.98	539.53	144.59	0.07
Reach-1	1328	100 Year	435.70	471.90	480.33		480.33	0.000101	0.79	720.97	157.10	0.05
Reach-1	1328	500 Year	551.50	471.90	481.73		481.73	0.000070	0.73	948.81	168.30	0.04
Reach-1	1284	10 Year	279.70	472.20	476.59		476.61	0.000483	1.06	292.84	111.49	0.10
Reach-1	1284	50 Year	391.30	472.20	479.13		479.13	0.000113	0.72	634.58	158.94	0.05
Reach-1	1284	100 Year	435.70	472.20	480.32		480.33	0.000065	0.61	837.53	178.88	0.04
Reach-1	1284	500 Year	551.50	472.20	481.72		481.73	0.000047	0.58	1096.14	190.24	0.03
Reach-1	1202	10 Year	279.70	469.60	476.54	472.82	476.57	0.000392	1.51	219.14	149.81	0.11
Reach-1	1202	50 Year	391.30	469.60	479.10	473.32	479.12	0.000170	1.28	349.48	224.45	0.08
Reach-1	1202	100 Year	435.70	469.60	480.30	473.47	480.32	0.000124	1.20	410.75	245.08	0.07
Reach-1	1202	500 Year	551.50	469.60	481.70	473.88	481.72	0.000118	1.28	482.06	256.49	0.07
Reach-1	1119.5		Culvert									
Reach-1	1076	10 Year	282.00	469.20	472.93	472.93	474.78	0.023479	10.91	25.85	87.56	1.00
Reach-1	1076	50 Year	395.80	469.20	473.87	473.87	476.19	0.021797	12.22	32.39	128.13	1.00
Reach-1	1076	100 Year	440.80	469.20	474.20	474.20	476.71	0.021461	12.70	34.72	140.97	1.00

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1076	500 Year	555.70	469.20	474.90	474.90	475.09	0.002633	4.85	190.24	165.71	0.36
Reach-1	1026	10 Year	282.00	465.90	471.01		471.06	0.000698	1.99	181.74	85.91	0.17
Reach-1	1026	50 Year	395.80	465.90	471.24		471.32	0.001080	2.56	202.38	93.46	0.22
Reach-1	1026	100 Year	440.80	465.90	471.40		471.49	0.001136	2.69	217.83	98.73	0.22
Reach-1	1026	500 Year	555.70	465.90	471.51		471.65	0.001612	3.26	229.14	102.43	0.27
Reach-1	981	10 Year	282.00	465.70	470.99		471.03	0.000553	1.85	200.66	97.08	0.16
Reach-1	981	50 Year	395.80	465.70	471.20		471.28	0.000872	2.40	222.73	105.91	0.20
Reach-1	981	100 Year	440.80	465.70	471.36		471.44	0.000921	2.52	240.09	112.38	0.20
Reach-1	981	500 Year	555.70	465.70	471.46		471.58	0.001331	3.07	251.04	116.27	0.25
Reach-1	918	10 Year	282.00	465.30	470.98		471.00	0.000248	1.24	310.87	138.11	0.10
Reach-1	918	50 Year	395.80	465.30	471.20		471.23	0.000390	1.61	341.55	145.46	0.13
Reach-1	918	100 Year	440.80	465.30	471.36		471.39	0.000411	1.69	365.21	150.88	0.14
Reach-1	918	500 Year	555.70	465.30	471.45		471.50	0.000595	2.06	379.59	154.08	0.17
Reach-1	833	10 Year	282.00	464.10	470.97	468.82	470.98	0.000154	1.01	445.86	201.91	0.07
Reach-1	833	50 Year	395.80	464.10	471.18	469.99	471.19	0.000276	1.38	489.21	211.73	0.09
Reach-1	833	100 Year	440.80	464.10	471.34	470.27	471.35	0.000286	1.43	523.46	217.95	0.09
Reach-1	833	500 Year	555.70	464.10	471.43	470.27	471.45	0.000414	1.73	542.53	221.34	0.11
Reach-1	817.5		Culvert									
Reach-1	802	10 Year	282.00	463.92	467.34	466.81	467.44	0.005690	3.52	134.62	107.33	0.34
Reach-1	802	50 Year	395.80	463.92	467.74	466.81	467.85	0.005549	3.76	182.16	128.59	0.34
Reach-1	802	100 Year	440.80	463.92	467.88	466.82	467.99	0.005497	3.83	200.36	135.85	0.35
Reach-1	802	500 Year	555.70	463.92	468.18	467.06	468.29	0.005376	3.99	243.25	146.09	0.35
Reach-1	726	10 Year	282.00	463.60	466.81		466.93	0.008483	2.84	107.79	76.39	0.34
Reach-1	726	50 Year	395.80	463.60	467.17		467.32	0.008976	3.24	138.43	91.08	0.36
Reach-1	726	100 Year	440.80	463.60	467.30		467.46	0.009085	3.37	150.37	96.20	0.37
Reach-1	726	500 Year	555.70	463.60	467.56		467.75	0.009732	3.71	176.62	106.60	0.38
Reach-1	635	10 Year	282.00	462.00	464.69	464.69	465.28	0.055775	6.34	49.72	48.27	0.84
Reach-1	635	50 Year	395.80	462.00	465.06	465.06	465.67	0.048502	6.71	69.95	61.60	0.81
Reach-1	635	100 Year	440.80	462.00	465.18	465.18	465.81	0.047404	6.87	77.23	65.74	0.81
Reach-1	635	500 Year	555.70	462.00	465.48	465.45	466.10	0.041128	6.97	99.15	76.87	0.77

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	619	10 Year	282.00	460.00	464.25		464.55	0.018752	4.45	64.29	35.08	0.50
Reach-1	619	50 Year	395.80	460.00	464.66		465.07	0.020718	5.19	82.06	50.78	0.54
Reach-1	619	100 Year	440.80	460.00	464.80		465.24	0.021169	5.42	89.57	56.11	0.55
Reach-1	619	500 Year	555.70	460.00	465.11		465.61	0.022059	5.90	108.69	67.81	0.57
Reach-1	495	10 Year	282.00	458.30	462.20		462.37	0.016112	3.28	86.59	60.43	0.45
Reach-1	495	50 Year	395.80	458.30	462.56		462.77	0.015970	3.72	111.07	76.60	0.46
Reach-1	495	100 Year	440.80	458.30	462.67		462.90	0.016008	3.87	120.53	82.00	0.47
Reach-1	495	500 Year	555.70	458.30	462.94		463.20	0.016084	4.20	144.27	94.20	0.48
Reach-1	393	10 Year	282.00	456.95	460.91	459.87	461.07	0.010542	3.50	103.01	95.31	0.39
Reach-1	393	50 Year	395.80	456.95	461.17	460.61	461.37	0.012367	4.04	129.30	106.93	0.42
Reach-1	393	100 Year	440.80	456.95	461.26	460.74	461.48	0.012933	4.22	139.10	110.95	0.44
Reach-1	393	500 Year	555.70	456.95	461.45	460.94	461.71	0.014548	4.67	160.99	119.45	0.47

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	4830	10yr	294.00	519.35	520.89	520.89	521.32	0.025262	5.26	55.84	66.19	1.01
Reach-1	4830	50yr	392.00	519.35	521.08	521.08	521.59	0.024217	5.70	68.85	72.90	1.01
Reach-1	4830	100yr	441.00	519.35	521.17	521.17	521.71	0.022900	5.88	75.49	76.09	1.00
Reach-1	4830	500yr	544.00	519.35	521.34	521.34	521.94	0.021345	6.25	88.70	82.06	0.99
Reach-1	4587	10yr	294.00	513.00	518.52		518.53	0.000062	0.78	391.12	110.37	0.06
Reach-1	4587	50yr	392.00	513.00	519.59		519.60	0.000050	0.81	521.85	134.77	0.06
Reach-1	4587	100yr	441.00	513.00	519.73		519.74	0.000058	0.89	540.59	138.20	0.07
Reach-1	4587	500yr	544.00	513.00	519.89		519.90	0.000080	1.06	563.04	142.20	0.08
Reach-1	4437	10yr	204.00	513.00	518.52	513.44	518.52	0.000006	0.24	857.91	195.92	0.02
Reach-1	4437	50yr	324.00	513.00	519.59	513.60	519.59	0.000007	0.30	1078.05	217.00	0.02
Reach-1	4437	100yr	378.00	513.00	519.73	513.67	519.73	0.000009	0.34	1108.10	220.24	0.03
Reach-1	4437	500yr	481.00	513.00	519.89	513.78	519.89	0.000013	0.42	1143.84	224.05	0.03
Reach-1	4338		Culvert									
Reach-1	4291	10yr	204.00	510.40	512.70	512.70	513.05	0.029995	5.00	48.89	80.77	0.83
Reach-1	4291	50yr	324.00	510.40	513.01	513.01	513.37	0.028699	5.32	78.82	109.22	0.83
Reach-1	4291	100yr	378.00	510.40	513.11	513.11	513.48	0.028395	5.47	89.70	112.07	0.84
Reach-1	4291	500yr	481.00	510.40	513.25	513.25	513.67	0.029759	5.87	106.28	116.28	0.87
Reach-1	4188	10yr	204.00	508.32	510.82	510.58	510.91	0.014858	3.04	92.35	125.82	0.43
Reach-1	4188	50yr	324.00	508.32	511.02	510.75	511.15	0.017870	3.61	118.18	128.36	0.48
Reach-1	4188	100yr	378.00	508.32	511.11	510.81	511.25	0.018552	3.80	129.23	129.90	0.49
Reach-1	4188	500yr	481.00	508.32	511.25	510.92	511.43	0.019607	4.11	148.64	132.56	0.51
Reach-1	3967	10yr	204.00	501.10	504.78	504.65	505.36	0.052446	6.25	34.82	27.40	0.79
Reach-1	3967	50yr	324.00	501.10	505.42	505.39	505.91	0.035153	6.18	66.38	64.31	0.68
Reach-1	3967	100yr	378.00	501.10	505.59	505.53	506.07	0.032930	6.25	78.06	69.88	0.66
Reach-1	3967	500yr	481.00	501.10	505.88	505.74	506.35	0.029893	6.36	99.39	79.05	0.64
Reach-1	3831	10yr	204.00	498.10	502.49		502.61	0.010147	2.94	72.67	39.61	0.35
Reach-1	3831	50yr	324.00	498.10	503.09		503.26	0.012213	3.45	99.70	52.00	0.40
Reach-1	3831	100yr	378.00	498.10	503.29		503.47	0.012461	3.66	110.00	54.71	0.41
Reach-1	3831	500yr	481.00	498.10	503.62		503.84	0.012686	4.01	128.94	59.04	0.42
Reach-1	3669	10yr	216.00	496.18	500.99		501.14	0.009548	3.34	74.48	44.15	0.36

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	3669	50yr	326.00	496.18	501.59		501.74	0.008938	3.51	114.00	68.82	0.35
Reach-1	3669	100yr	386.00	496.18	501.84		501.99	0.008505	3.53	131.56	70.77	0.35
Reach-1	3669	500yr	505.00	496.18	502.27		502.43	0.007839	3.64	162.96	74.97	0.34
Reach-1	3525	10yr	216.00	495.50	499.07		499.38	0.022868	4.49	48.18	24.96	0.56
Reach-1	3525	50yr	326.00	495.50	499.77		500.13	0.019984	4.88	68.98	34.72	0.54
Reach-1	3525	100yr	386.00	495.50	500.08		500.46	0.019059	5.04	80.53	39.33	0.54
Reach-1	3525	500yr	505.00	495.50	500.60		501.01	0.017939	5.31	103.23	48.15	0.53
Reach-1	3310	10yr	216.00	492.48	497.18		497.27	0.005301	2.40	90.07	39.01	0.28
Reach-1	3310	50yr	326.00	492.48	497.85		497.97	0.005863	2.76	118.16	44.71	0.30
Reach-1	3310	100yr	386.00	492.48	498.15		498.28	0.006083	2.93	131.91	47.69	0.31
Reach-1	3310	500yr	505.00	492.48	498.64		498.80	0.006497	3.24	156.69	53.33	0.32
Reach-1	3134	10yr	216.00	491.51	495.66	494.61	495.89	0.012615	3.91	60.75	37.29	0.43
Reach-1	3134	50yr	326.00	491.51	496.26	495.20	496.53	0.012128	4.41	85.94	47.03	0.44
Reach-1	3134	100yr	386.00	491.51	496.48	495.47	496.78	0.012739	4.72	96.61	50.70	0.45
Reach-1	3134	500yr	505.00	491.51	496.89	495.92	497.24	0.013071	5.16	118.84	57.61	0.47
Reach-1	2997	10yr	253.00	492.00	493.78	493.08	493.96	0.015133	3.44	73.44	71.25	0.46
Reach-1	2997	50yr	378.00	492.00	494.08	493.39	494.38	0.019804	4.38	86.20	75.75	0.54
Reach-1	2997	100yr	448.00	492.00	494.40	493.56	494.71	0.017301	4.51	99.41	78.58	0.52
Reach-1	2997	500yr	589.00	492.00	494.99	493.86	495.34	0.014274	4.75	124.10	83.87	0.49
Reach-1	2957		Culvert									
Reach-1	2917	10yr	253.00	491.30	492.87	492.87	493.55	0.081943	6.60	38.35	28.83	1.01
Reach-1	2917	50yr	378.00	491.30	493.40	493.40	494.01	0.050474	6.46	63.58	69.46	0.84
Reach-1	2917	100yr	448.00	491.30	493.56	493.56	494.23	0.050717	6.84	71.38	72.73	0.85
Reach-1	2917	500yr	589.00	491.30	494.17		494.71	0.029486	6.21	101.73	88.29	0.68
Reach-1	2800	10yr	253.00	490.60	492.81		492.83	0.001120	1.13	228.17	136.59	0.15
Reach-1	2800	50yr	378.00	490.60	493.23		493.26	0.001226	1.36	285.82	141.97	0.16
Reach-1	2800	100yr	448.00	490.60	493.51		493.54	0.001131	1.41	326.83	145.68	0.16
Reach-1	2800	500yr	589.00	490.60	494.17		494.20	0.000861	1.44	425.57	154.23	0.14
Reach-1	2677	10yr	253.00	490.30	492.19		492.44	0.024087	4.73	71.65	85.29	0.67
Reach-1	2677	50yr	378.00	490.30	492.70		492.89	0.013342	4.26	120.18	104.70	0.52

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	2677	100yr	448.00	490.30	493.11		493.24	0.007751	3.66	165.65	118.27	0.41
Reach-1	2677	500yr	589.00	490.30	493.93		494.01	0.003276	2.88	269.90	135.52	0.28
Reach-1	2550	10yr	253.00	489.63	492.27		492.28	0.000202	0.98	295.66	142.95	0.11
Reach-1	2550	50yr	378.00	489.63	492.72		492.74	0.000250	1.22	362.82	152.28	0.12
Reach-1	2550	100yr	448.00	489.63	493.10		493.12	0.000228	1.27	422.47	160.31	0.12
Reach-1	2550	500yr	589.00	489.63	493.91		493.94	0.000181	1.30	559.62	178.53	0.11
Reach-1	2396	10yr	256.00	489.63	492.23		492.25	0.000237	1.02	264.49	123.79	0.12
Reach-1	2396	50yr	379.00	489.63	492.68		492.70	0.000296	1.26	321.47	131.85	0.13
Reach-1	2396	100yr	475.00	489.63	493.06		493.08	0.000305	1.37	373.35	226.23	0.14
Reach-1	2396	500yr	684.00	489.63	493.87		493.90	0.000260	1.48	563.53	241.20	0.13
Reach-1	2200	10yr	256.00	489.63	492.15		492.18	0.000514	1.44	179.28	82.50	0.17
Reach-1	2200	50yr	379.00	489.63	492.57		492.61	0.000650	1.79	214.46	85.52	0.20
Reach-1	2200	100yr	475.00	489.63	492.94		493.00	0.000666	1.96	246.73	88.20	0.20
Reach-1	2200	500yr	684.00	489.63	493.76		493.82	0.000586	2.13	373.97	243.86	0.20
Reach-1	2028	10yr	256.00	487.50	491.66		491.92	0.011841	4.11	62.29	28.39	0.49
Reach-1	2028	50yr	379.00	487.50	491.68		492.25	0.025210	6.03	62.91	28.47	0.71
Reach-1	2028	100yr	475.00	487.50	491.57	491.51	492.56	0.046045	7.95	59.75	28.04	0.96
Reach-1	2028	500yr	684.00	487.50	492.12	492.12	493.39	0.047695	9.03	75.79	30.18	1.00
Reach-1	1973	10yr	256.00	488.58	491.79		491.79	0.000013	0.29	903.79	290.40	0.03
Reach-1	1973	50yr	379.00	488.58	491.96		491.96	0.000024	0.40	952.73	291.49	0.04
Reach-1	1973	100yr	475.00	488.58	492.05		492.06	0.000034	0.49	980.26	292.33	0.05
Reach-1	1973	500yr	684.00	488.58	492.27		492.27	0.000057	0.66	1043.77	294.25	0.06
Reach-1	1917	10yr	259.00	489.00	491.56	491.56	491.77	0.026108	5.21	95.74	216.57	0.73
Reach-1	1917	50yr	391.00	489.00	491.71	491.71	491.93	0.028178	5.73	128.01	237.59	0.77
Reach-1	1917	100yr	469.00	489.00	491.74	491.74	492.02	0.034738	6.44	135.78	242.38	0.86
Reach-1	1917	500yr	692.00	489.00	491.95	491.95	492.23	0.032279	6.72	194.34	303.52	0.85
Reach-1	1716	10yr	259.00	478.80	480.11		480.18	0.009107	2.05	126.49	127.34	0.36
Reach-1	1716	50yr	391.00	478.80	480.27		480.38	0.012779	2.67	147.02	132.06	0.43
Reach-1	1716	100yr	469.00	478.80	480.42		480.54	0.012287	2.84	166.97	136.49	0.43
Reach-1	1716	500yr	692.00	478.80	481.82		481.88	0.002083	1.89	386.25	173.82	0.20

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1622	10yr	270.00	476.80	478.03	477.99	478.35	0.058724	4.77	62.85	82.89	0.84
Reach-1	1622	50yr	413.00	476.80	478.62		478.84	0.022307	4.01	113.43	89.04	0.56
Reach-1	1622	100yr	474.00	476.80	480.01		480.07	0.002617	2.09	246.25	101.57	0.21
Reach-1	1622	500yr	653.00	476.80	481.72		481.75	0.000883	1.64	432.91	117.69	0.13
Reach-1	1563	10yr	270.00	474.30	476.87		476.99	0.011827	3.06	103.83	95.84	0.41
Reach-1	1563	50yr	413.00	474.30	478.55		478.59	0.001362	1.64	286.37	116.74	0.16
Reach-1	1563	100yr	474.00	474.30	480.00		480.01	0.000398	1.12	465.17	130.95	0.09
Reach-1	1563	500yr	653.00	474.30	481.71		481.72	0.000210	1.00	705.79	149.81	0.07
Reach-1	1513	10yr	270.00	474.00	476.57		476.62	0.004779	2.22	167.62	161.05	0.27
Reach-1	1513	50yr	413.00	474.00	478.54		478.55	0.000385	0.98	501.65	178.77	0.09
Reach-1	1513	100yr	474.00	474.00	479.99		480.00	0.000129	0.70	771.51	191.90	0.05
Reach-1	1513	500yr	653.00	474.00	481.71		481.72	0.000077	0.65	1115.38	208.20	0.04
Reach-1	1422	10yr	270.00	471.64	476.47		476.49	0.000608	1.24	294.81	125.26	0.11
Reach-1	1422	50yr	413.00	471.64	478.51		478.52	0.000182	0.88	567.80	142.22	0.06
Reach-1	1422	100yr	474.00	471.64	479.98		479.99	0.000087	0.70	785.65	154.42	0.04
Reach-1	1422	500yr	653.00	471.64	481.70		481.71	0.000065	0.69	1063.42	168.70	0.04
Reach-1	1328	10yr	270.00	471.90	476.38		476.41	0.001228	1.75	209.26	95.35	0.15
Reach-1	1328	50yr	413.00	471.90	478.49		478.50	0.000354	1.24	449.86	133.24	0.09
Reach-1	1328	100yr	474.00	471.90	479.97		479.98	0.000153	0.94	665.69	154.26	0.06
Reach-1	1328	500yr	653.00	471.90	481.69		481.70	0.000099	0.87	943.42	168.05	0.05
Reach-1	1284	10yr	270.00	472.20	476.35		476.37	0.000585	1.12	266.72	107.41	0.10
Reach-1	1284	50yr	413.00	472.20	478.48		478.49	0.000199	0.89	535.45	146.67	0.07
Reach-1	1284	100yr	474.00	472.20	479.97		479.97	0.000096	0.72	774.55	174.15	0.05
Reach-1	1284	500yr	653.00	472.20	481.69		481.70	0.000067	0.69	1089.91	189.97	0.04
Reach-1	1202	10yr	264.00	469.60	476.30	472.74	476.33	0.000419	1.52	206.82	138.92	0.12
Reach-1	1202	50yr	365.00	469.60	478.45	473.21	478.47	0.000205	1.33	316.28	212.67	0.09
Reach-1	1202	100yr	423.00	469.60	479.94	473.43	479.96	0.000136	1.22	392.55	239.73	0.07
Reach-1	1202	500yr	550.00	469.60	481.66	473.89	481.69	0.000118	1.28	480.45	256.23	0.07
Reach-1	1119.5		Culvert									
Reach-1	1076	10yr	264.00	469.20	472.77	472.77	474.54	0.023811	10.67	24.74	80.69	1.00

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

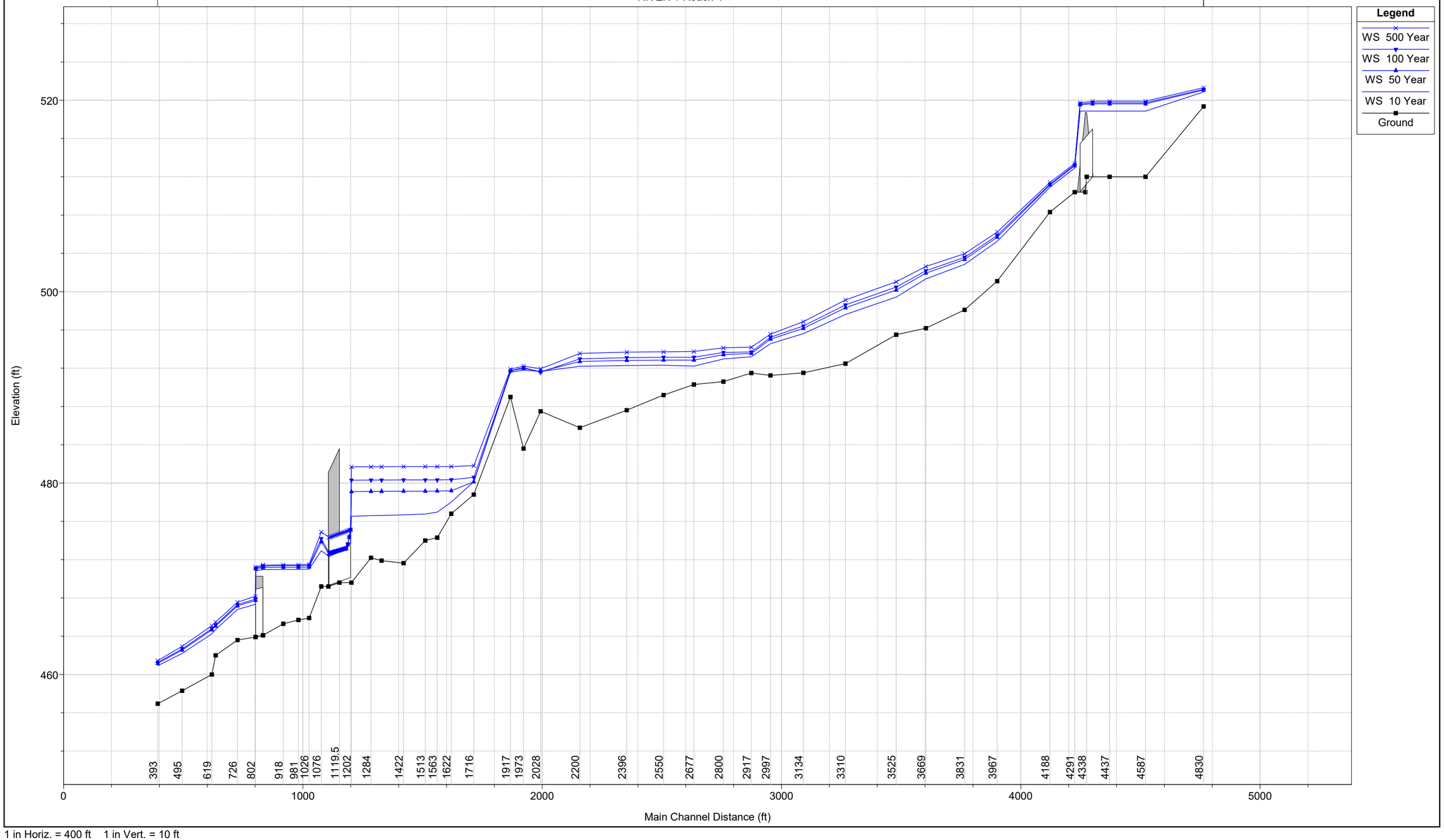
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1076	50yr	365.00	469.20	473.62	473.62	475.82	0.022250	11.90	30.67	117.43	1.00
Reach-1	1076	100yr	423.00	469.20	474.08	474.08	476.51	0.021509	12.50	33.85	136.53	1.00
Reach-1	1076	500yr	550.00	469.20	474.90	474.90	475.08	0.002579	4.80	190.24	165.71	0.36
Reach-1	1026	10yr	264.00	468.01	470.52		470.81	0.008207	4.59	65.98	40.50	0.54
Reach-1	1026	50yr	365.00	468.01	471.02		471.35	0.007404	4.98	87.77	48.57	0.53
Reach-1	1026	100yr	423.00	468.01	471.25		471.62	0.007446	5.27	100.36	59.76	0.54
Reach-1	1026	500yr	550.00	468.01	471.77		472.14	0.006284	5.40	135.65	74.94	0.51
Reach-1	981	10yr	264.00	466.62	470.18		470.50	0.006341	5.06	68.87	39.73	0.50
Reach-1	981	50yr	365.00	466.62	470.67		471.04	0.006537	5.65	90.57	50.47	0.52
Reach-1	981	100yr	423.00	466.62	470.93		471.31	0.006410	5.85	104.21	56.02	0.52
Reach-1	981	500yr	550.00	466.62	471.45		471.86	0.006106	6.21	137.83	73.26	0.52
Reach-1	918	10yr	264.00	466.33	468.90	468.90	469.71	0.028282	7.30	37.73	25.74	0.96
Reach-1	918	50yr	365.00	466.33	469.33	469.33	470.27	0.024790	7.90	49.92	30.09	0.93
Reach-1	918	100yr	423.00	466.33	469.55	469.55	470.55	0.023887	8.24	56.60	32.96	0.93
Reach-1	918	500yr	550.00	466.33	469.89	469.89	471.09	0.024578	9.13	69.16	39.45	0.96
Reach-1	833	10yr	267.00	464.91	466.86	466.63	467.28	0.027861	5.37	52.24	38.34	0.73
Reach-1	833	50yr	370.00	464.91	467.42	466.95	467.82	0.018179	5.25	74.86	41.75	0.62
Reach-1	833	100yr	428.00	464.91	467.68	467.11	468.08	0.015950	5.29	85.86	42.70	0.59
Reach-1	833	500yr	553.00	464.91	468.14	467.42	468.58	0.013950	5.54	105.54	44.52	0.57
Reach-1	817.5		Culvert									
Reach-1	802	10yr	267.00	464.24	467.02	465.66	467.11	0.004174	2.45	109.20	61.06	0.28
Reach-1	802	50yr	370.00	464.24	467.44	465.90	467.57	0.004652	2.88	128.58	63.56	0.30
Reach-1	802	100yr	428.00	464.24	467.64	466.03	467.79	0.004948	3.11	137.74	64.77	0.32
Reach-1	802	500yr	553.00	464.24	467.98	466.30	468.18	0.005787	3.61	153.26	66.89	0.35
Reach-1	726	10yr	267.00	462.44	466.51		466.74	0.013289	4.37	77.01	53.97	0.44
Reach-1	726	50yr	370.00	462.44	466.89		467.17	0.014031	4.85	99.39	67.75	0.46
Reach-1	726	100yr	428.00	462.44	467.07		467.37	0.014452	5.10	113.01	80.24	0.47
Reach-1	726	500yr	553.00	462.44	467.41		467.73	0.014520	5.42	141.61	88.51	0.48
Reach-1	635	10yr	267.00	462.11	465.28		465.49	0.014401	4.08	81.42	61.30	0.45
Reach-1	635	50yr	370.00	462.11	465.74		465.95	0.012418	4.24	112.16	73.28	0.43

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	635	100yr	428.00	462.11	465.94		466.16	0.012044	4.36	127.26	78.02	0.43
Reach-1	635	500yr	553.00	462.11	466.31		466.55	0.011435	4.58	157.92	85.70	0.43
Reach-1	619	10yr	267.00	461.54	464.88	464.05	465.23	0.018646	4.96	62.47	41.33	0.52
Reach-1	619	50yr	370.00	461.54	465.29	464.67	465.70	0.019672	5.57	82.37	55.98	0.55
Reach-1	619	100yr	428.00	461.54	465.45	464.84	465.90	0.020720	5.91	91.89	61.47	0.57
Reach-1	619	500yr	553.00	461.54	465.40	465.40	466.20	0.037335	7.85	88.77	59.84	0.76
Reach-1	495	10yr	366.00	459.66	461.51	461.51	462.16	0.085840	6.44	56.90	51.69	1.00
Reach-1	495	50yr	513.00	459.66	461.85	461.85	462.64	0.077440	7.14	72.72	55.55	0.98
Reach-1	495	100yr	587.00	459.66	462.02	462.02	462.86	0.071582	7.35	81.47	58.95	0.96
Reach-1	495	500yr	750.00	459.66	462.90	462.34	463.47	0.029348	6.12	126.64	69.84	0.66
Reach-1	400		Culvert									
Reach-1	393	10yr	366.00	458.16	460.95	460.95	461.65	0.055111	7.32	58.30	41.20	0.87
Reach-1	393	50yr	513.00	458.16	461.32	461.32	462.17	0.054833	8.10	74.00	43.62	0.89
Reach-1	393	100yr	587.00	458.16	461.50	461.50	462.40	0.053378	8.36	82.06	44.82	0.89
Reach-1	393	500yr	750.00	458.16	461.85	461.85	462.88	0.052830	8.99	97.82	47.22	0.90

SquabbleTribD Plan: Post-Project 3/3/2022 3:39:07 PM

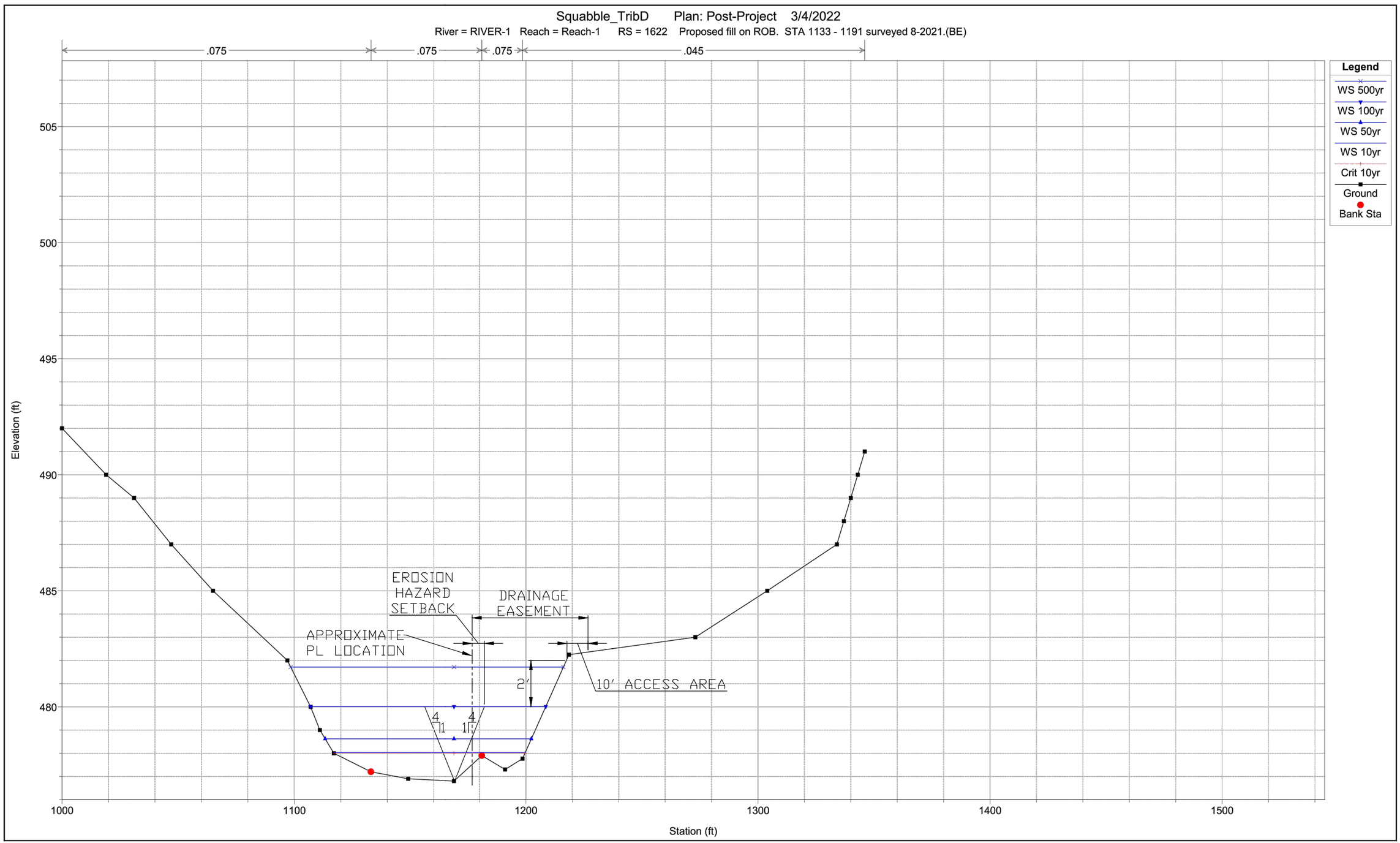
RIVER-1 Reach-1



1 in Horiz. = 400 ft 1 in Vert. = 10 ft

Squabble_TribD Plan: Post-Project 3/4/2022

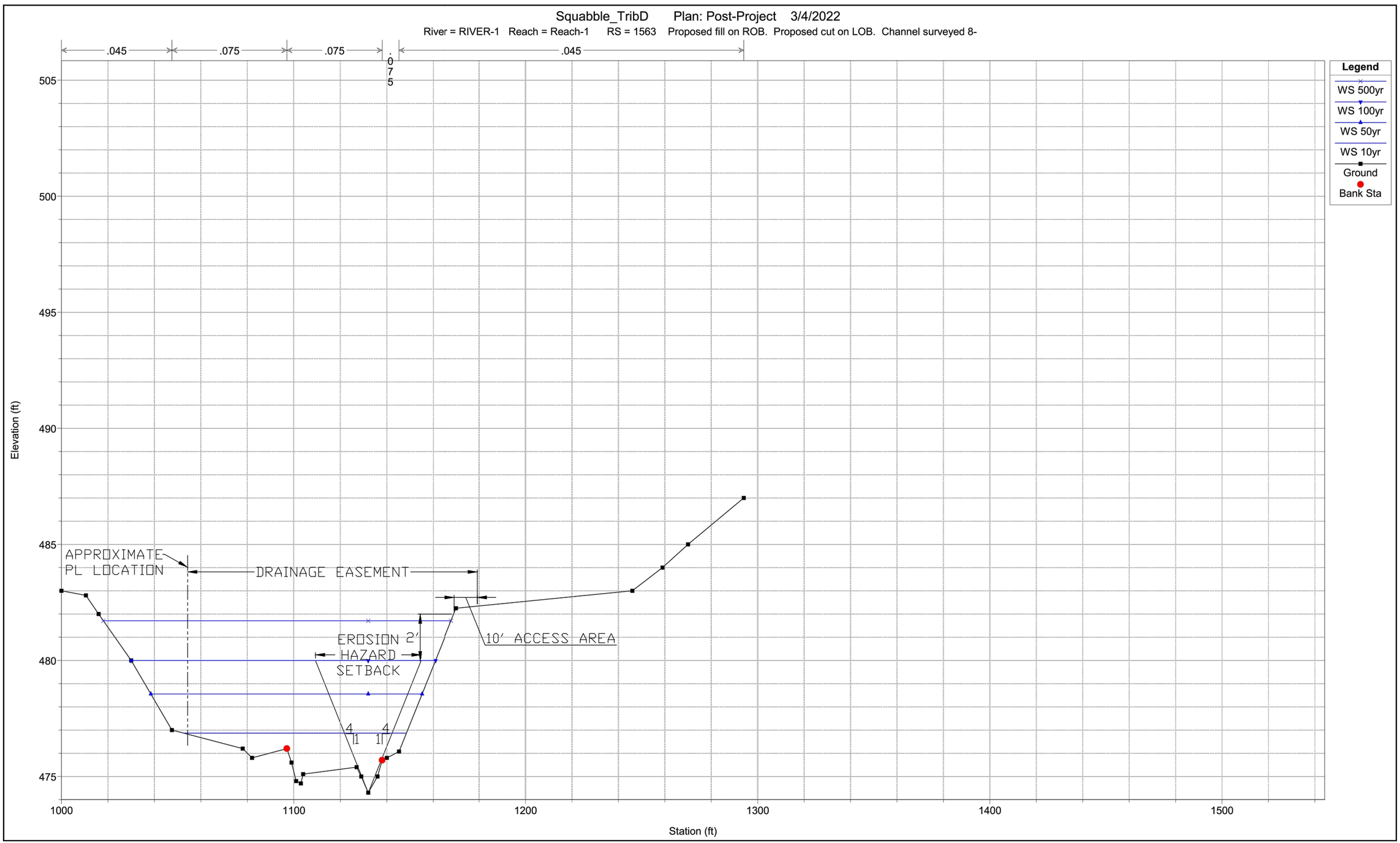
River = RIVER-1 Reach = Reach-1 RS = 1622 Proposed fill on ROB. STA 1133 - 1191 surveyed 8-2021.(BE)



1 in Horiz. = 40 ft 1 in Vert. = 4 ft

Squabble_TribD Plan: Post-Project 3/4/2022

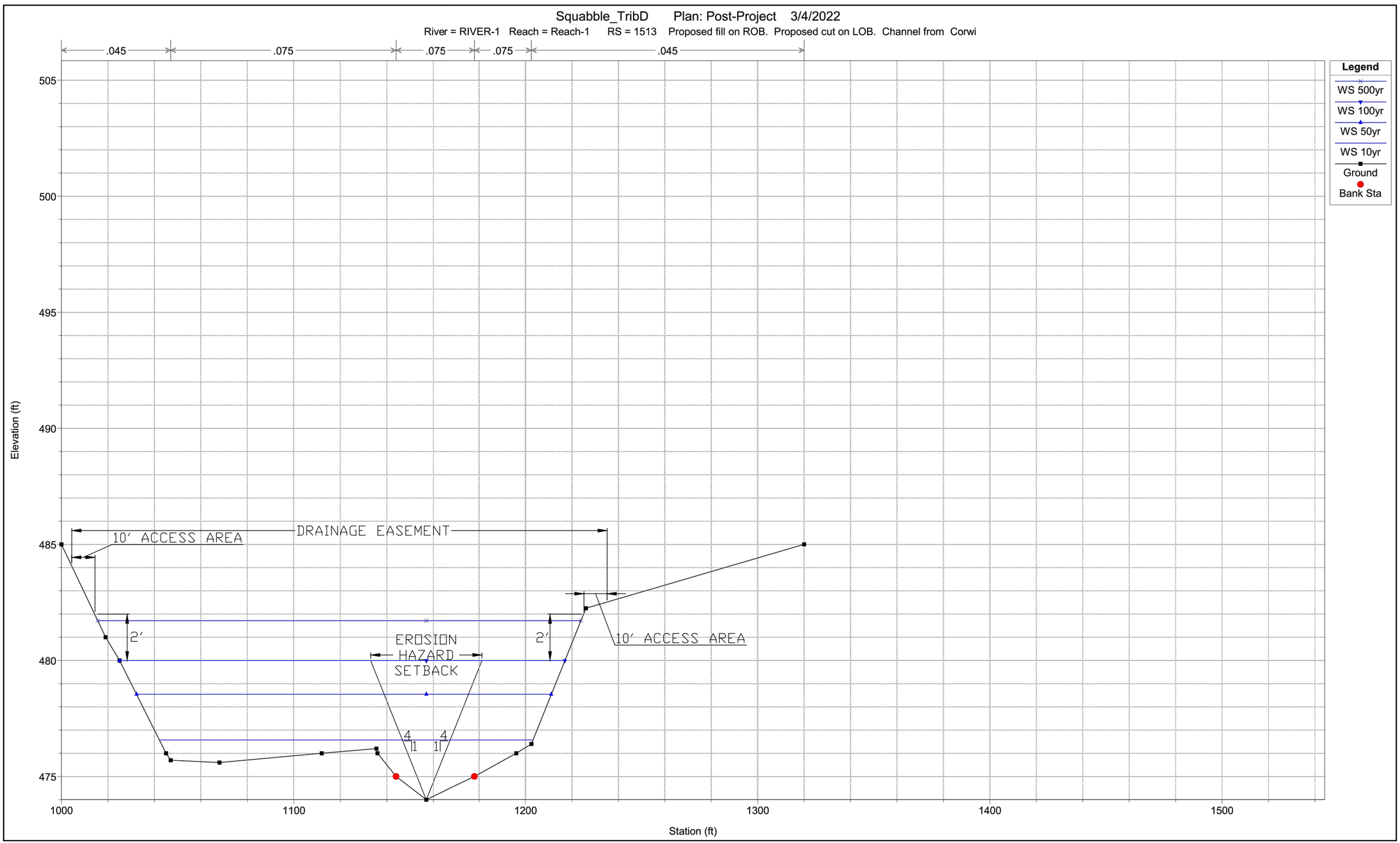
River = RIVER-1 Reach = Reach-1 RS = 1563 Proposed fill on ROB. Proposed cut on LOB. Channel surveyed 8-



1 in Horiz. = 40 ft 1 in Vert. = 4 ft

Squabble_TribD Plan: Post-Project 3/4/2022

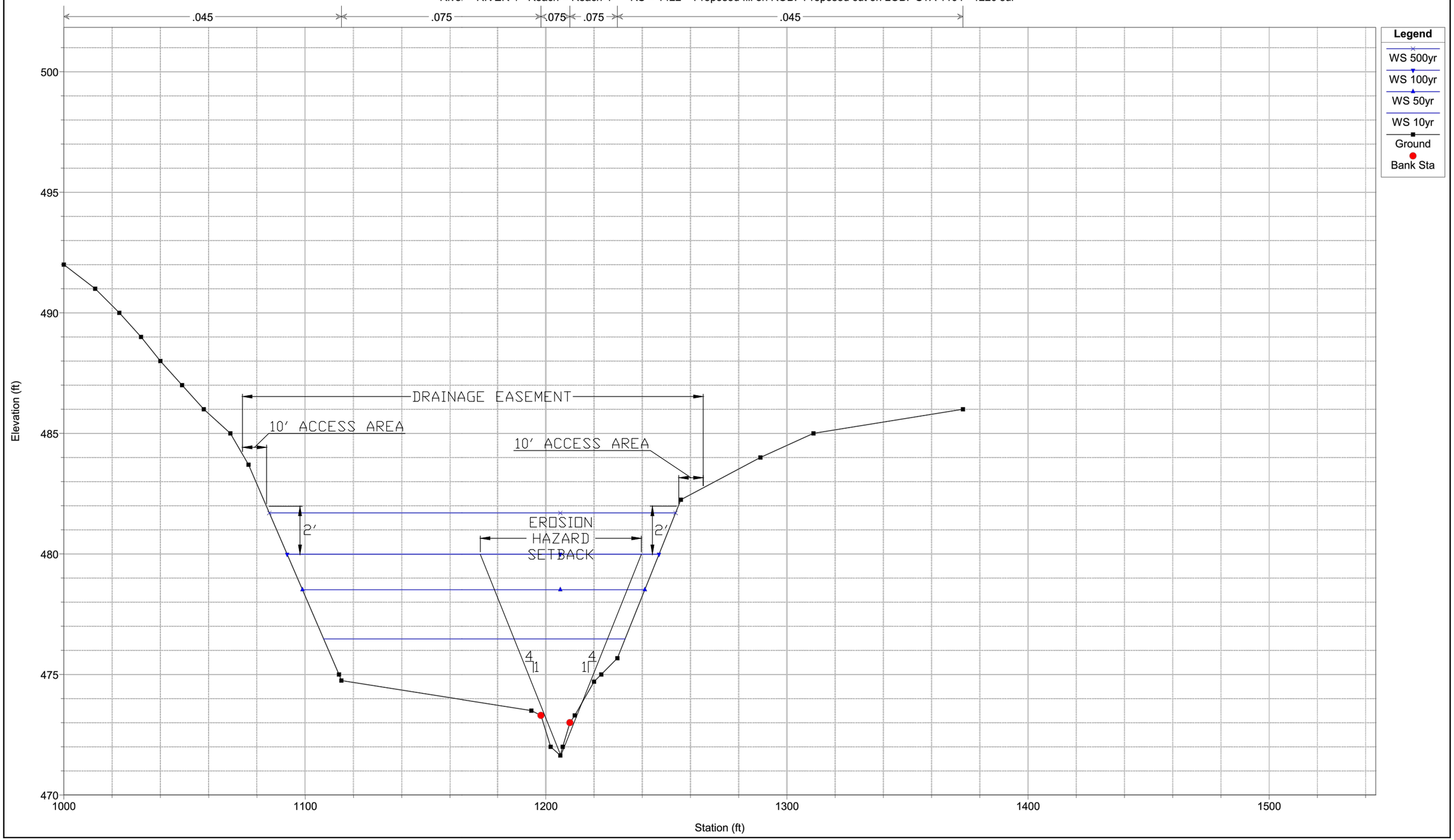
River = RIVER-1 Reach = Reach-1 RS = 1513 Proposed fill on ROB. Proposed cut on LOB. Channel from Corwi



1 in Horiz. = 40 ft 1 in Vert. = 4 ft

Squabble_TribD Plan: Post-Project 3/4/2022

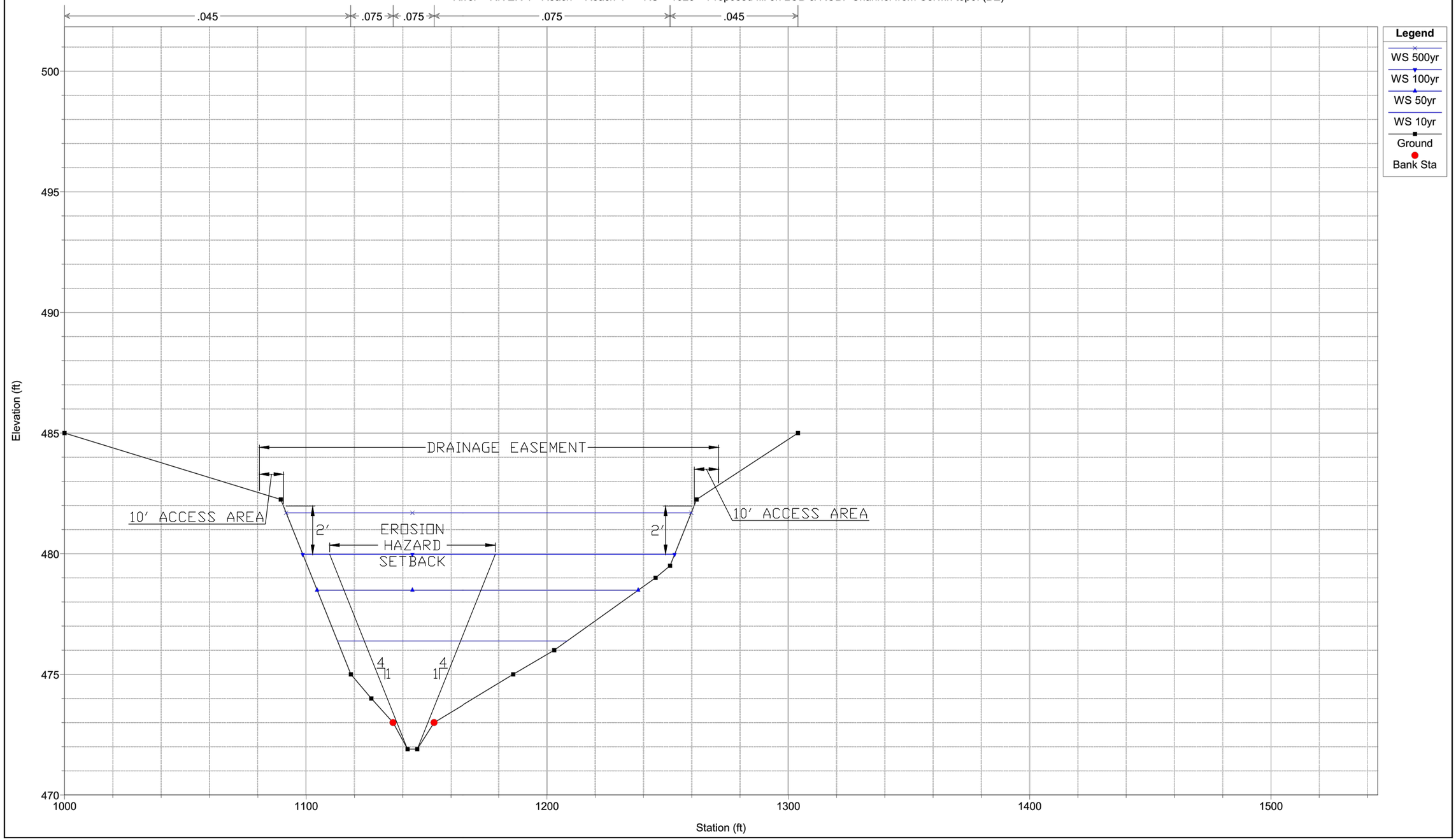
River = RIVER-1 Reach = Reach-1 RS = 1422 Proposed fill on ROB. Proposed cut on LOB. STA 1104 - 1220 sur



1 in Horiz. = 40 ft 1 in Vert. = 4 ft

Squabble_TribD Plan: Post-Project 3/4/2022

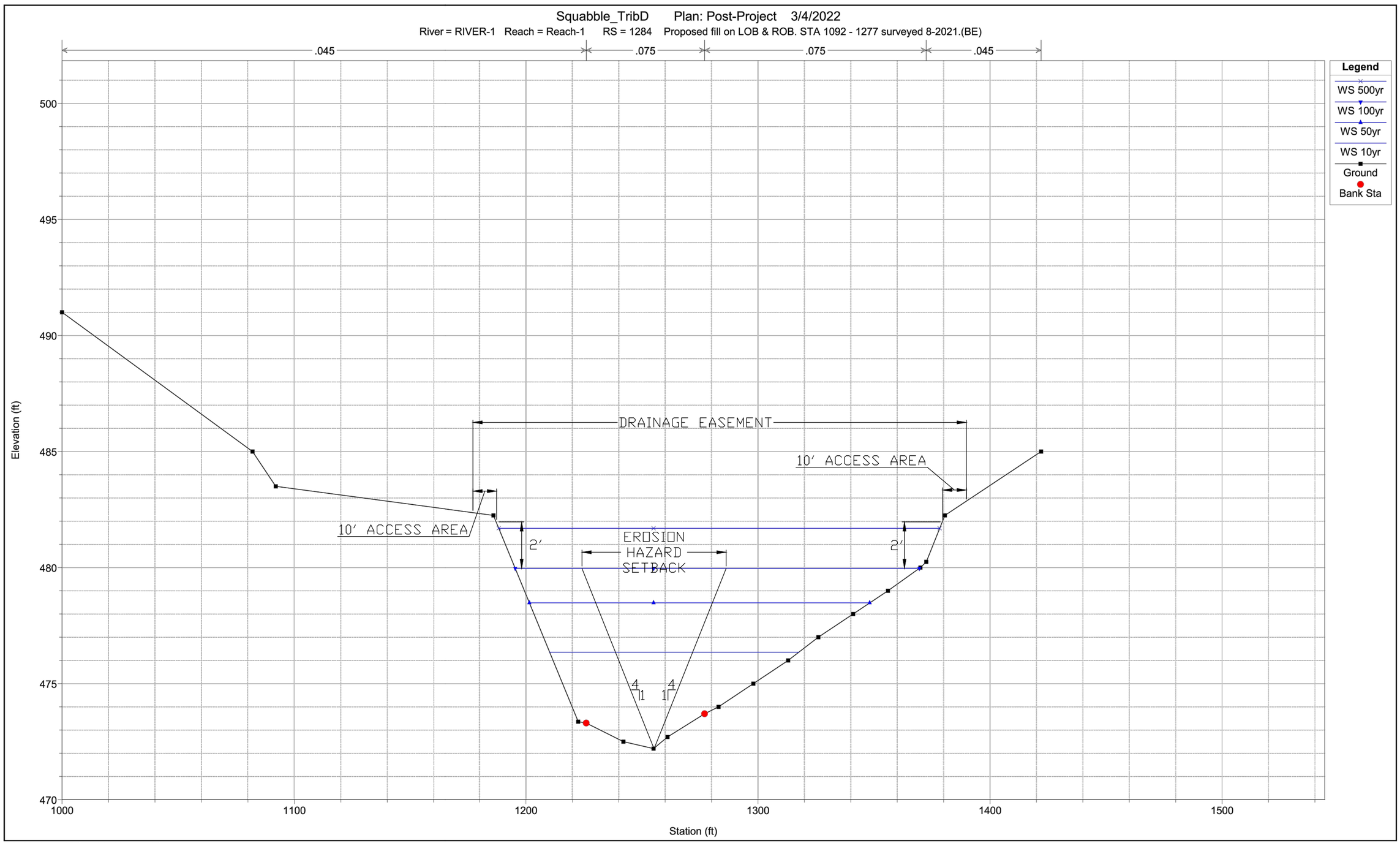
River = RIVER-1 Reach = Reach-1 RS = 1328 Proposed fill on LOB & ROB. Channel from Corwin topo. (BE)



1 in Horiz. = 40 ft 1 in Vert. = 4 ft

Squabble_TribD Plan: Post-Project 3/4/2022

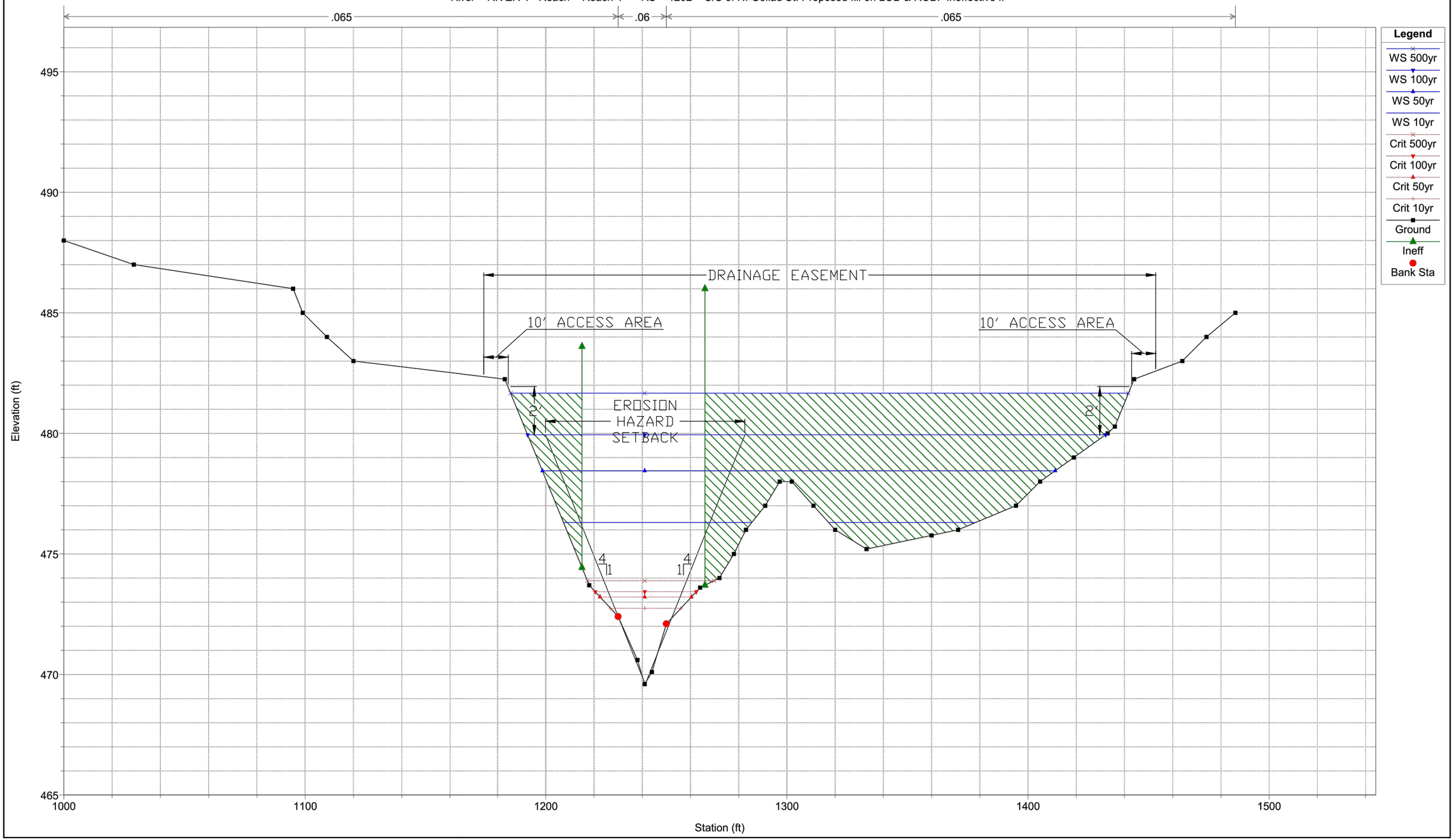
River = RIVER-1 Reach = Reach-1 RS = 1284 Proposed fill on LOB & ROB. STA 1092 - 1277 surveyed 8-2021.(BE)



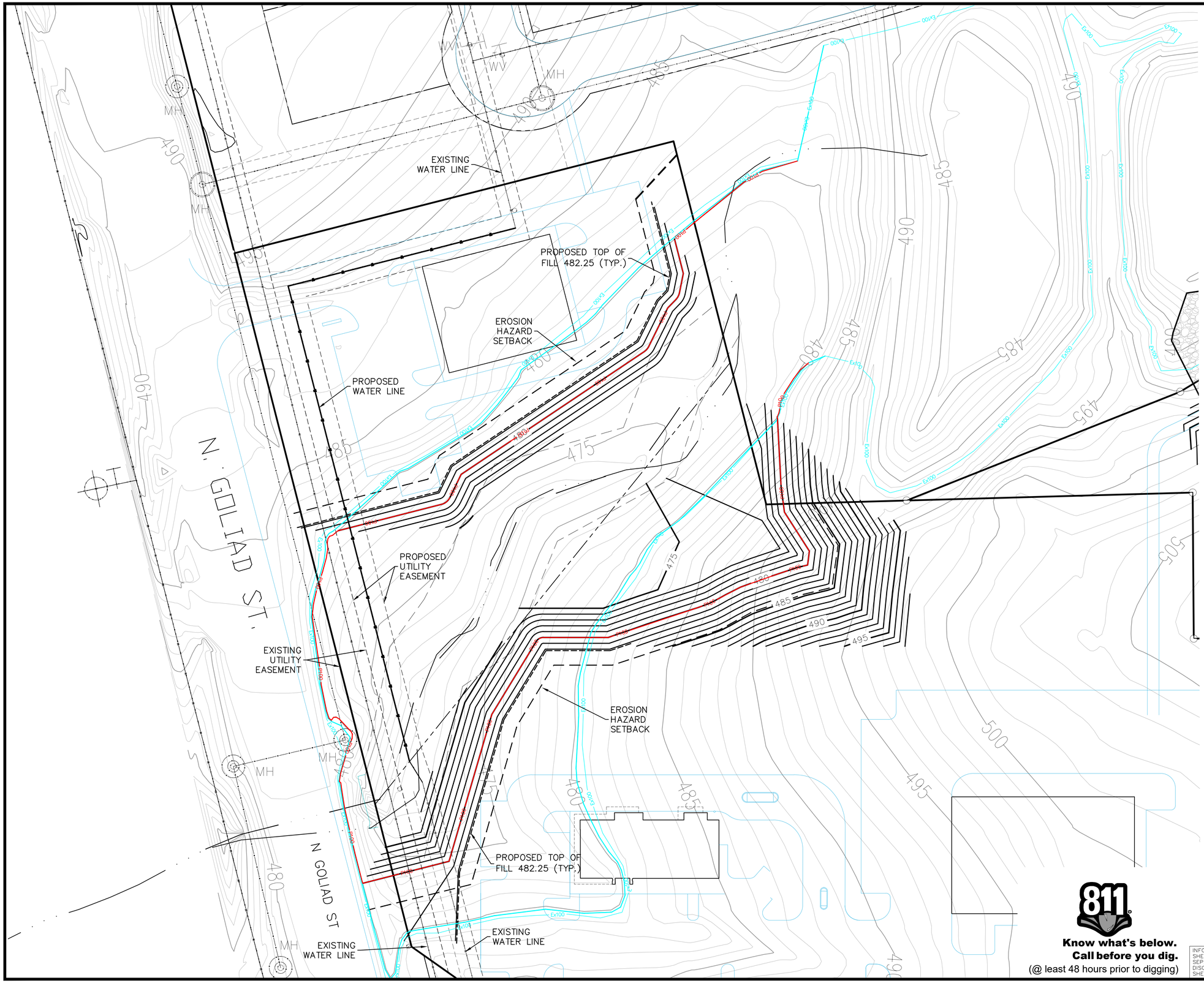
1 in Horiz. = 40 ft 1 in Vert. = 4 ft

Squabble_TribD Plan: Post-Project 3/4/2022

River = RIVER-1 Reach = Reach-1 RS = 1202 U/S of N. Goliad St. Proposed fill on LOB & ROB. Ineffective fl



1 in Horiz. = 40 ft 1 in Vert. = 4 ft



LEGEND

607	EXISTING CONTOUR
607	PROPOSED CONTOURS

NOTES

1. ALL SLOPES WITHIN ACCESSIBLE PARKING AREAS SHALL NOT EXCEED 2.0% IN ANY DIRECTION. SLOPES ALONG ALL SIDEWALKS AND ACCESSIBLE ROUTES SHALL NOT EXCEED 5.0% IN THE DIRECTION OF TRAVEL AND 2.0% IN CROSS SLOPE UNLESS OTHERWISE SPECIFIED ON THE PLAN.
2. IN UNPAVED AREAS, SLOPES SHALL NOT EXCEED 4' HORIZONTAL TO 1' VERTICAL (4:1).
3. IN PAVED AREAS, SPOT ELEVATIONS ARE TO TOP OF PAVEMENT (GUTTER LINE) UNLESS OTHERWISE NOTED. ADD 0.5' FOR TOP OF CURB. IN UNPAVED AREAS, ALL SPOT ELEVATIONS ARE TO TOP OF FINISHED GRADE, TOP OF SOD OR TOP OF LANDSCAPE ADDITIONS AS APPLICABLE.
4. REFER TO GENERAL NOTES SHEET FOR SITE ACCESSIBILITY STANDARDS AND ADDITIONAL NOTES.
5. ALL UTILITIES SHALL BE CONSTRUCTED BEGINNING AT THE TIE-IN LOCATION TO EXISTING UTILITIES (DOWNSTREAM) AND PROCEED TO PROPOSED STRUCTURES (UPSTREAM).
6. CONTRACTOR TO VERIFY THE EXISTENCE, LOCATION AND DEPTHS OF ALL EXISTING UTILITIES WITHIN THE PROJECT WORK AREA BEFORE COMMENCING CONSTRUCTION.
7. THE UTILITIES SHOWN ON THESE PLANS WERE COMPILED FROM VARIOUS SOURCES AND ARE INTENDED TO SHOW THE GENERAL HORIZONTAL AND VERTICAL LOCATIONS OF UTILITIES IN THE AREA OF CONSTRUCTION. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE UTILITY INFORMATION SHOWN ON THESE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE EXACT LOCATION OF ALL UTILITIES.
8. UNDER THE TEXAS "ONE-CALL" LAW THE CONTRACTOR MUST CONTACT THE NOTIFICATION CALL CENTER BY DIALING 811 NO SOONER THAN 14 DAYS PRIOR AND AT LEAST 48 HOURS BEFORE THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES IN ORDER TO IDENTIFY ANY UTILITIES IN CONFLICT WITH THE PROPOSED FACILITIES. CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY WHEN CONFLICTS WITH THE EXISTING UTILITIES ARE DISCOVERED.
9. IF WALLS ARE PART OF THE PROPOSED SITE DESIGN, FINISHED GROUND GRADES AT HIGH SIDE AND LOW SIDE OF WALL DO NOT NECESSARILY INDICATE WALL STRUCTURE ELEVATIONS AND ARE NOT INTENDED TO REPRESENT FOOTING DEPTHS OR STRUCTURAL WALL HEIGHTS. CONTRACTOR SHALL REFER TO STRUCTURAL PLANS AND DETAILS FOR FOOTING DEPTHS AND FOR ACTUAL WALL HEIGHTS.

NOTES TO CONTRACTOR

1. INFORMATION ON THIS SHEET AND OTHER SHEETS THROUGHOUT THIS PLAN SET IS PART OF A UNIFIED DESIGN. THE CONTRACTOR SHALL NOT SEPARATE DRAWINGS FROM THE SET FOR DISTRIBUTION TO SPECIFIC DISCIPLINES. EACH SUBCONTRACTOR SHALL BE PROVIDED WITH ALL SHEETS WITHIN THIS PLAN SET.
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3. CONTRACTOR SHALL REFERENCE ALL IRRIGATION PLANS, MEP SITE PLANS, AND CIVIL ENGINEERING UTILITY PLANS FOR INFORMATION REGARDING SLEEVES BENEATH PAVEMENT.

BENCHMARKS

BM#1:
CITY OF ROCKWALL MONUMENT 14

NAVD88
ELEV.=497.13

811 Know what's below. Call before you dig. (@ least 48 hours prior to digging)

INFORMATION ON THIS SHEET IS PERTINENT TO ALL OTHER DESIGN SHEETS IN THIS SET OF DRAWINGS. THE CONTRACTOR SHALL NOT SEPARATE DRAWINGS FROM THE SET FOR DISTRIBUTION TO SPECIFIC DISCIPLINES. EACH SUBCONTRACTOR SHALL BE PROVIDED WITH ALL SHEETS WITHIN THIS PLAN SET.

BANNISTER ENGINEERING
240 N. Mitchell Road | Mansfield, TX 76063 | 817.842.2094 | 817.842.2095 fax
REGISTRATION # F-10599 (TEXAS)

STONE CREEK RETAIL
ROCKWALL, TEXAS

FLOOD STUDY GRADING PLAN (1 OF 2)

No.	Date	Revision Description

PROJECT NO.: 262-21-001

STATE OF TEXAS
MICHAEL J. MOORE
128498
LICENSED PROFESSIONAL ENGINEER
3/15/2022

SHEET NUMBER
20

File: B:\Clients\262 (DuWest)\262-21-001 (Stone Creek Retail - Rockwall)\Flood Study\FS Grading Plan.dwg || Date Plotted: 3/15/2022 3:42 PM || Plotted By: rmoore

PROPOSED 166 SQ.YD.
GROUTED ROCK RIPRAP

EXISTING
OUTLET CONTROL
STRUCTURE
INSTALL
TRASH RACK

EXISTING
TOP OF BERM 502.0

PROPOSED 65 SQ.YD.
CONCRETE PILOT
CHANNEL

PROPOSED
EMERGENCY SPILLWAY
FL = 500.0
46' WIDE

PROPERTY LINE

GRAPHIC SCALE

40 0 20 40 80

(IN FEET)
1 inch = 40 ft.

LEGEND

607	EXISTING CONTOUR
607	PROPOSED CONTOURS

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BENCHMARKS

BM#1:
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BANNISTER ENGINEERING
240 N. Mitchell Road | Mansfield, TX 76063 | 817.842.2094 | 817.842.2095 fax
REGISTRATION # F-10599 (TEXAS)

STONE CREEK RETAIL
ROCKWALL, TEXAS
FLOOD STUDY GRADING PLAN (2 OF 2)

No.	Date	Revision Description

PROJECT NO.: 262-21-001

STATE OF TEXAS
MICHAEL J. MOORE
128498
LICENSED
PROFESSIONAL ENGINEER
3/15/2022

SHEET NUMBER
20

File: B:\Clients\262 (DuWest)\262-21-001 (Stone Creek Retail – Rockwall)\Flood Study\FS Grading Plan.dwg || Date Plotted: 3/15/2022 3:44 PM || Plotted By: mmoore

CITY OF ROCKWALL

PLANNING AND ZONING COMMISSION CASE MEMO

PLANNING AND ZONING DEPARTMENT
385 S. GOLIAD STREET • ROCKWALL, TX 75087
PHONE: (972) 771-7745 • EMAIL: PLANNING@ROCKWALL.COM

TO:	Planning and Zoning Commission
DATE:	January 10, 2023
APPLICANT:	Bowen Hendrix; *DuWest Realty, LLC*
CASE NUMBER:	SP2022-057; *Site Plan for a Chipotle*

SUMMARY

Discuss and consider a request by Bowen Hendrix of DuWest Realty, LLC for the approval of a Site Plan for a Restaurant with 2,000 SF or more with a Drive-Through (i.e. Chipotle) on an 8.684-acre portion of a larger 36.428-acre tract of land identified as Tract 3 of the S. King Survey, Abstract No. 131, City of Rockwall, Rockwall County, Texas, being zoned Planned Development District 70 (PD-70) for limited General Retail (GR) District land uses, situated within the North SH-205 Overlay (N. SH-205 OV) District, generally located at the northeast corner of the intersection of E. Quail Run Road and N. Goliad Street [SH-205], and take any action necessary.

BACKGROUND

The subject property was annexed on February 6, 1961 by *Ordinance No. 61-02* [*Case No. A1961-002*]. At the time of annexation, the subject property was zoned Agricultural (AG) District. On April 2, 2007, the City Council adopted *Ordinance No. 07-13* [*Case No. Z2007-006*], which rezoned a 395.075-acre tract of land -- *that included the subject property* -- from an Agricultural (AG) District to Planned Development District 70 (PD-70) for Single-Family 10 (SF-10) District and limited General Retail (GR) District land uses. The concept plan included with this Planned Development District designated the subject property for Single-Family 10 (SF-10) District land uses. On October 19, 2009, the City Council adopted *Ordinance No. 09-44* [*Case No. Z2009-018*], which amended the concept plan and development standards for Planned Development District 70 (PD-70). The amendment re-designated approximately seven (7) acres of the subject property to allow limited General Retail (GR) District land uses. This area was later expanded by *Ordinance No. 11-35* [*Case No. Z2011-016*] to include the remainder of the subject property, re-designating the entire 8.63-acres for limited General Retail (GR) District land uses. On February 6, 2017, the City Council approved a *PD Development Plan* [*Ordinance No. 17-08; Case No. Z2016-049*] for the subject property in accordance with the requirements of Planned Development District 70 (PD-70). This development plan was for a proposed grocery store; however, the project was never pursued beyond the *PD Development Plan*, and the subject property has remained vacant since annexation. On October 3, 2022, the City Council approved [*Case No. Z2022-042*] granting a Specific Use Permit (SUP) [*Ordinance No. 22-53, S-288*] on the subject property allowing the construction of a *Restaurant with 2,000 SF or more with a Drive-Through or Drive-In*.

PURPOSE

On December 12, 2022, Bowen Hendrix of DuWest Realty, LLC, submitted an application requesting the approval of a Site Plan for the purpose of constructing a 2,325 SF drive-through restaurant.

ADJACENT LAND USES AND ACCESS

The subject property is located north of the intersection of E. Quail Run Road and N. Goliad Street [*SH-205*]. The land uses adjacent to the subject property are as follows:

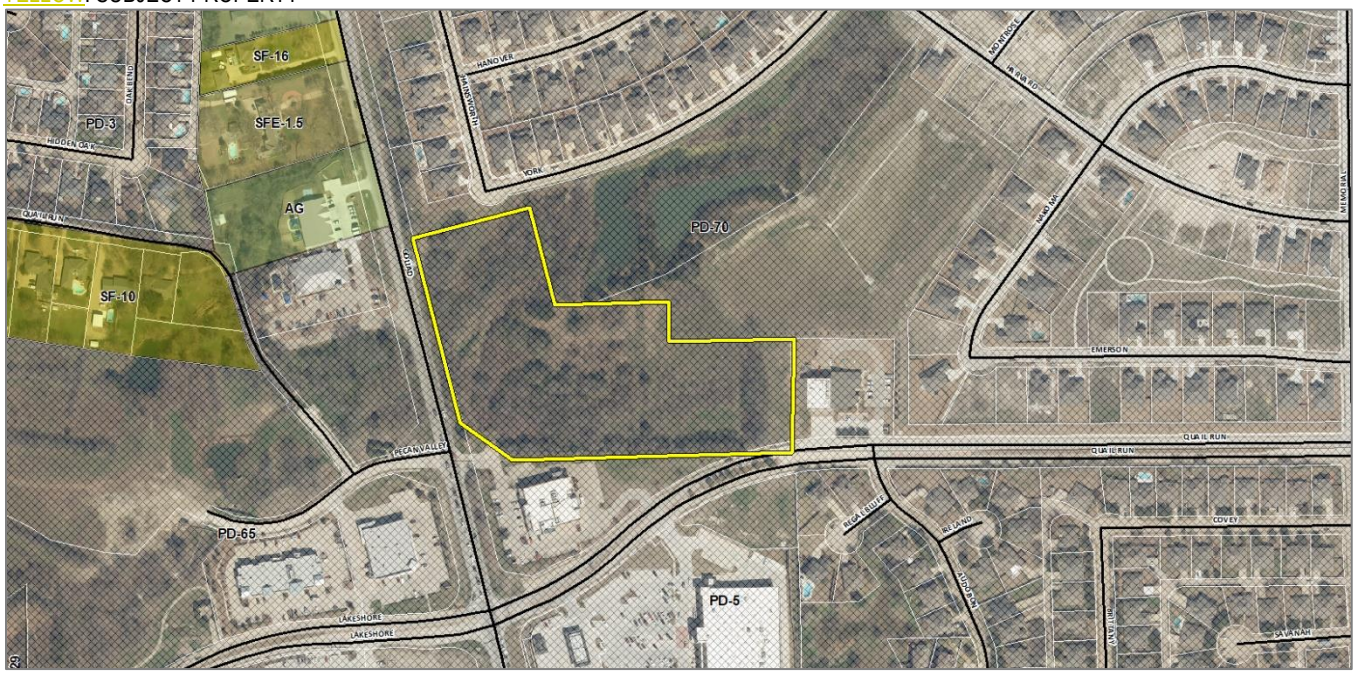
North: Directly north of the subject property is Phase 4 of the Stone Creek Subdivision, which was established on June 12, 2013 and consists of 59 single-family residential lots. Beyond this is Phase 1 of the Stone Creek Subdivision, which was established on August 28, 2008 and consists of 201 single-family residential lots. Both of these subdivisions are zoned Planned Development District 70 (PD-70) for Single-Family 10 (SF-10) District land uses.

South: Directly south of the subject property is a 2.519-acre parcel of land (*i.e. Lot 1R, Block B, Quail Run Retail*) with a pharmacy (*i.e. CVS Pharmacy*) situated on it. Beyond this is E. Quail Run Road, which is identified as a M4D (*i.e. major collector, four [4] lane, divided roadway*) on the City's Master Thoroughfare Plan contained within the OURHometown Vision 2040 Comprehensive Plan. Beyond this is a 11.236-acre parcel of land (*i.e. Lot 1, Block A, Kroger 205 Addition*) with a grocery store and gas station (*i.e. Kroger Grocery Store and Fuel Center*) situated on it. These properties are zoned Planned Development District 5 (PD-5) for General Retail (GR) District land uses.

East: Directly east of the subject property is a 1.512-acre parcel of land owned by the City of Rockwall, and which is occupied with a fire station (*i.e. Fire Station #3*). Beyond this is Phase 7 of the Stone Creek Subdivision, which was established on July 13, 2016 and consists of 80 single-family residential homes. These properties are zoned Planned Development District 70 (PD-70) for *Public* and Single-Family 10 (SF-10) District land uses.

West: Directly west of the subject property is N. Goliad Street [*SH-205*], which is identified as a M4D (*i.e. major collector, four [4] lane, divided roadway*) on the City's Master Thoroughfare Plan contained within the OURHometown Vision 2040 Comprehensive Plan. Beyond this is a 2.174-acre parcel of land (*i.e. Lot 1, Block A, Pecan Valley Retail Addition*), which is occupied by a multi-tenant retail building.

FIGURE 1: LOCATION MAP WITH ZONING DESIGNATIONS AND PARCELS
YELLOW: SUBJECT PROPERTY



DENSITY AND DIMENSIONAL REQUIREMENTS

According to Section 01, *Land Use Schedule*, of Article 04, *Permissible Uses*, of the Unified Development Code (UDC) a *Restaurant with 2,000 SF or more with Drive-Through or Drive-In* requires a Specific Use Permit (SUP) in a General Retail (GR) District. That being said, *Specific Use Permit No. S-288* allows a *Restaurant, 2,000 SF or more with Drive-Through or Drive-In* on the subject property in accordance with the requirements of *Ordinance No. 22-53*. Based on this -- *and the submitted site plan, landscape plan, treescape plan, photometric plan, and building elevations generally conforming to the technical requirements* --, this case appears to be in conformance with all applicable requirements stipulated by the Unified Development Code (UDC) for a property located within Planned Development District 70 (PD-70) and a General Retail (GR) District. A summary of the density and dimensional requirements for the subject property are as follows:

Ordinance Provisions	*Zoning District Standards*	*Conformance to the Standards*
Minimum Lot Area	*6,000 SF*	*X=8.684-acres; In Conformance*
Minimum Lot frontage	*60-Feet*	*X>60 -feet; In Conformance*

Ordinance Provisions	*Zoning District Standards*	*Conformance to the Standards*
Minimum Lot Depth	*100-Feet*	*X=263.13-feet; In Conformance*
Minimum Front Yard Setback	*25-Feet*	*X>25-feet; In Conformance*
Minimum Rear Yard Setback	*20-Feet*	*X>20-feet; In Conformance*
Minimum Side Yard Setback	*10-Feet*	*X>10-feet; In Conformance*
Maximum Building Height	*36-Feet*	*X=24.1-feet; In Conformance*
Max Building/Lot Coverage	*40%*	*X=0.06%; In Conformance*
Minimum Number of Parking Spaces	*24 Parking Spaces Required*	*X=35 Parking Spaces; In-Conformance*
Minimum Landscaping Percentage	*20%*	*43%; In Conformance*
Maximum Impervious Coverage	*85%-90%*	*X<85%; In Conformance*

TREESCAPE PLAN

The *Treescape Plan* provided by the applicant indicates that the development will result in a total mitigation balance of 351.00 caliper inches of trees. As part of the proposed development the applicant is protecting a few Pecan trees that are greater than 25 caliper inches in size. This allows the applicant to reduce their total mitigation balance by 20%, bringing the balance to 280.80 caliper inches of trees. The proposed landscape plan shows that an additional 312 caliper inches of October Glory Maple, Mexican White Oak, Live Oak, and Cedar Elm trees will be planted on the subject property as part of this development. Given this, the proposed treescape plan and landscape plan satisfy the tree mitigation balance.

CONFORMANCE WITH THE CITY'S CODES

According to Planned Development District 70 (PD-70), the underlying zoning of the subject property is General Retail (GR) District, and according to Subsection 04.04, *General Retail (GR) District*, of Article 05, *District Development Standards*, of the Unified Development Code (UDC), "(t)he General Retail (GR) District is a zoning district intended to provide *limited* retail and service uses for one (1) or more neighborhoods. The land uses specified in this district include most types of retail and office activity, and are typically located on/at the intersections of major roadways." In this case, the applicant is proposing a *Restaurant with 2,000 SF or more with Drive-Through or Drive-In*. In addition, the subject property is close to the intersection of E. Quail Run Road and N. Goliad Street [*SH-205*], and has direct access to both of these roadways. This section goes on to state that "(t)he General Retail (GR) District is not a major commercial/retail district, and should avoid intensive commercial land uses that carry large volumes of retail traffic. The noise, traffic, litter, late night hours, and other influences that could be harmful to residential areas require adequate buffering and screening from residential areas." To satisfy these requirements, the applicant is proposing to incorporate three (3) tiered screening (*i.e. [1] a small to mid-sized shrub, [2] large shrubs or accent trees, and [3] canopy trees on 20-foot centers*) along the northern, southern, and western property lines. Staff should also point out that this is intended to not only mitigate the impacts of any future retail and service uses, but also the *Restaurant with 2,000 SF or more with Drive-Through or Drive-In* land use that was approved to be on the property by Specific Use Permit (SUP) [*Case No. Z2022-042; Ordinance No. 22-53*]. Finally, the General Retail (GR) District is intended to have requirements that "…are stringent and require high standards of development …" In this case, the subject property is also located within the North SH-205 (N. SH-205 OV) District, which requires the City's highest development standards (*i.e. the General Overlay District Standards*). Based on staff's review of the applicant's project compared to the City's codes, the request does appear to meet the City's requirements with the exception of the roof design standards and the four (4) sided architecture requirements stipulated by the *General Overlay District Standards*. This will require a discretionary approval from the Planning and Zoning Commission.

VARIANCES AND EXCEPTIONS REQUESTED BY THE APPLICANT

As stated above, the applicant's request generally conforms to the majority of the City's codes; however, staff has identified the following variances:

(1) *Architectural Standards*.

(a) Roof Design Standards. According to Subsection 06.02 (C)(2), *Roof Design Standards*, of Article 05, *District Development Standards*, of the Unified Development Code (UDC), "(a)ll structures that have a building footprint of less than 6,000 SF shall be constructed with a pitched roof". In this case the applicant is proposing a flat roof with a

parapet to screen the roof mounted utility equipment. This will require a *variance* from the Planning and Zoning Commission pending a recommendation from the Architectural Review Board (ARB).

(b) *Four (4) Sided Architecture*. According to Subsection 06.02 (C)(5), *Four (4) Sided Architecture*, of Article 05, *District Development Standards*, of the Unified Development Code (UDC), "(a)ll buildings shall be architecturally finished on all four (4) sides utilizing the same materials, detailing, articulation and features." In this case the applicant is required to meet the building articulation standards for the primary building façade on all sides of the building. Given the proposed building elevations the applicant does not meet the wall length requirements. This will require a *variance* from the Planning and Zoning Commission pending a recommendation from the Architectural Review Board (ARB).

According to Subsection 09.02, *Variances to the General Overlay District Standards*, of Article 11, *Development Applications and Review Procedures*, of the Unified Development Code (UDC), "…an applicant may request the Planning and Zoning Commission grant a variance to the provisions contained in Section 06.02, *General Overlay District Standards*, of Article 05, *District Development Standards*, where unique or extraordinary conditions exist or where strict adherence to the technical requirements of the Unified Development Code would create an undue hardship." In addition, the code requires that applicants provide compensatory measures that directly offset the requested variances. In this case, as a compensatory measure the applicant is proposing to provide greater than the required number of canopy trees. With this being said, requests for variances to the *General Overlay District Standards* are discretionary decisions for the Planning and Zoning Commission. Staff should note that a supermajority vote (*e.g. six [6] out of the seven [7] commissioners*) -- *with a minimum of four (4) votes in the affirmative* -- is required for the approval of a variance.

CONFORMANCE WITH OURHOMETOWN VISION 2040 COMPREHENSIVE PLAN

The Future Land Use Plan adopted with the OURHometown Vision 2040 Comprehensive Plan identifies the subject property as being situated in the *Northwest Residential District*. The *Northwest Residential District* is "…characterized by the two (2) large master planned communities that make up the majority of the acreage in this district." In this case, the subject property is a part of one (1) of these two (2) large master planned communities (*i.e. the Stone Creek Subdivision*), and is designated for *Commercial/Retail* land uses. According to the *District Strategies* for the *Northwest Residential District*, "(t)he commercial in this district is intended to support the existing residential subdivisions and should be compatible in scale with the adjacent residential structures." In this case, the proposed building is physically removed from the residential structures to the north and east, and are closer to the existing commercial land uses that are located on the north and south sides of the intersection of E. Quail Run Road and N. Goliad Street. As part of this case, the applicant was required to provide a *PD Development Plan* that delineated the increased pedestrian access and increased pedestrian amenity. The property located east of the subject property was required to provide an amenity area. In this case, the applicant provided -- *per staff request* -- a sidewalk connecting this proposed development to the amenity area to the northeast. All that being said, the applicant's proposal appears to conform with the goals and policies of the Comprehensive Plan.

ARCHITECTURAL REVIEW BOARD (ARB) RECOMMENDATION

The Architectural Review Board (ARB) reviewed the building elevations provided by the applicant on December 27, 2022, and made the recommendation to the applicant that they finish both sides of the parapet and increase the vertical articulation elements. The ARB will re-review the building elevations at their meeting on *January 10, 2023* and provide a recommendation to the Planning and Zoning Commission prior to the Planning and Zoning Commission taking action on this case.

CONDITIONS OF APPROVAL

If the Planning and Zoning Commission chooses to approve the applicant's *Site Plan* for a *Restaurant with 2,000 SF or more with Drive-Through or Drive-In* on the *subject property*, then staff would propose the following conditions of approval:

(1) All staff comments provided by the Planning, Engineering and Fire Department must be addressed prior to the submittal of engineering plans.

(2) Before any Certificates of Occupancy (CO's) are issued for future tenants, documentation shall be provided indicating that any proposed *Roof Top Units* (*RTU's*) will meet the screening requirements and will not be visible from any adjacent property, open space, or public right-of-way.

(3) Any construction resulting from the approval of this *Site Plan* shall conform to the requirements set forth by the Unified Development Code (UDC), the International Building Code (IBC), the Rockwall Municipal Code of Ordinances, city adopted engineering and fire codes and with all other applicable regulatory requirements administered and/or enforced by the state and federal government.

DEVELOPMENT APPLICATION

City of Rockwall
Planning and Zoning Department
385 S. Goliad Street
Rockwall, Texas 75087

STAFF USE ONLY

PLANNING & ZONING CASE NO.

NOTE: THE APPLICATION IS NOT CONSIDERED ACCEPTED BY THE CITY UNTIL THE PLANNING DIRECTOR AND CITY ENGINEER HAVE SIGNED BELOW.

DIRECTOR OF PLANNING:

CITY ENGINEER:

PLEASE CHECK THE APPROPRIATE BOX BELOW TO INDICATE THE TYPE OF DEVELOPMENT REQUEST [SELECT ONLY ONE BOX]:

PLATTING APPLICATION FEES:
- ☐ MASTER PLAT ($100.00 + $15.00 ACRE) [1]
- ☐ PRELIMINARY PLAT ($200.00 + $15.00 ACRE) [1]
- ☐ FINAL PLAT ($300.00 + $20.00 ACRE) [1]
- ☐ REPLAT ($300.00 + $20.00 ACRE) [1]
- ☐ AMENDING OR MINOR PLAT ($150.00)
- ☐ PLAT REINSTATEMENT REQUEST ($100.00)

SITE PLAN APPLICATION FEES:
- ☑ SITE PLAN ($250.00 + $20.00 ACRE) [1]
- ☐ AMENDED SITE PLAN/ELEVATIONS/LANDSCAPING PLAN ($100.00)

ZONING APPLICATION FEES:
- ☐ ZONING CHANGE ($200.00 + $15.00 ACRE) [1]
- ☐ SPECIFIC USE PERMIT ($200.00 + $15.00 ACRE) [1]
- ☐ PD DEVELOPMENT PLANS ($200.00 + $15.00 ACRE) [1]

OTHER APPLICATION FEES:
- ☐ TREE REMOVAL ($75.00)
- ☐ VARIANCE REQUEST ($100.00)

NOTES:
[1]: IN DETERMINING THE FEE, PLEASE USE THE EXACT ACREAGE WHEN MULTIPLYING BY THE PER ACRE AMOUNT FOR REQUESTS ON LESS THAN ONE ACRE, ROUND UP TO ONE (1) ACRE.

PROPERTY INFORMATION [PLEASE PRINT]

ADDRESS: not yet assigned*

SUBDIVISION: LOT: BLOCK:

GENERAL LOCATION: NEC E Quail Run Road and 205

ZONING, SITE PLAN AND PLATTING INFORMATION [PLEASE PRINT]

CURRENT ZONING: PD-70
PROPOSED ZONING: PD-70
ACREAGE: 8.684 AC LOTS [CURRENT]:

CURRENT USE: Undeveloped land
PROPOSED USE: Commercial (Retail)
LOTS [PROPOSED]:

☐ ***SITE PLANS AND PLATS:*** *BY CHECKING THIS BOX YOU ACKNOWLEDGE THAT DUE TO THE PASSAGE OF HB3167 THE CITY NO LONGER HAS FLEXIBILITY WITH REGARD TO ITS APPROVAL PROCESS, AND FAILURE TO ADDRESS ANY OF STAFF'S COMMENTS BY THE DATE PROVIDED ON THE DEVELOPMENT CALENDAR WILL RESULT IN THE DENIAL OF YOUR CASE.*

OWNER/APPLICANT/AGENT INFORMATION [PLEASE PRINT/CHECK THE PRIMARY CONTACT/ORIGINAL SIGNATURES ARE REQUIRED]

☐ OWNER
CONTACT PERSON:
ADDRESS:
CITY, STATE & ZIP:
PHONE:
E-MAIL:

☑ APPLICANT: DuWest Realty, LLC
CONTACT PERSON: Bowen Hendrix
ADDRESS: 4403 North Central Expressway
Suite 200
CITY, STATE & ZIP: Dallas, TX 75025
PHONE: (214) 918-1804
E-MAIL: bowen@duwestrealty.com

NOTARY VERIFICATION [REQUIRED]

BEFORE ME, THE UNDERSIGNED AUTHORITY, ON THIS DAY PERSONALLY APPEARED Bowen Hendrix [OWNER] THE UNDERSIGNED, WHO STATED THE INFORMATION ON THIS APPLICATION TO BE TRUE AND CERTIFIED THE FOLLOWING:

"I HEREBY CERTIFY THAT I AM THE OWNER FOR THE PURPOSE OF THIS APPLICATION; ALL INFORMATION SUBMITTED HEREIN IS TRUE AND CORRECT; AND THE APPLICATION FEE OF $ 230.26 *TO COVER THE COST OF THIS APPLICATION, HAS BEEN PAID TO THE CITY OF ROCKWALL ON THIS THE* January *DAY OF* 2022. *BY SIGNING THIS APPLICATION, I AGREE THAT THE CITY OF ROCKWALL (I.E. "CITY") IS AUTHORIZED AND PERMITTED TO PROVIDE INFORMATION CONTAINED WITHIN THIS APPLICATION TO THE PUBLIC. THE CITY IS ALSO AUTHORIZED AND PERMITTED TO REPRODUCE ANY COPYRIGHTED INFORMATION SUBMITTED IN CONJUNCTION WITH THIS APPLICATION, IF SUCH REPRODUCTION IS ASSOCIATED OR IN RESPONSE TO A REQUEST FOR PUBLIC INFORMATION."*

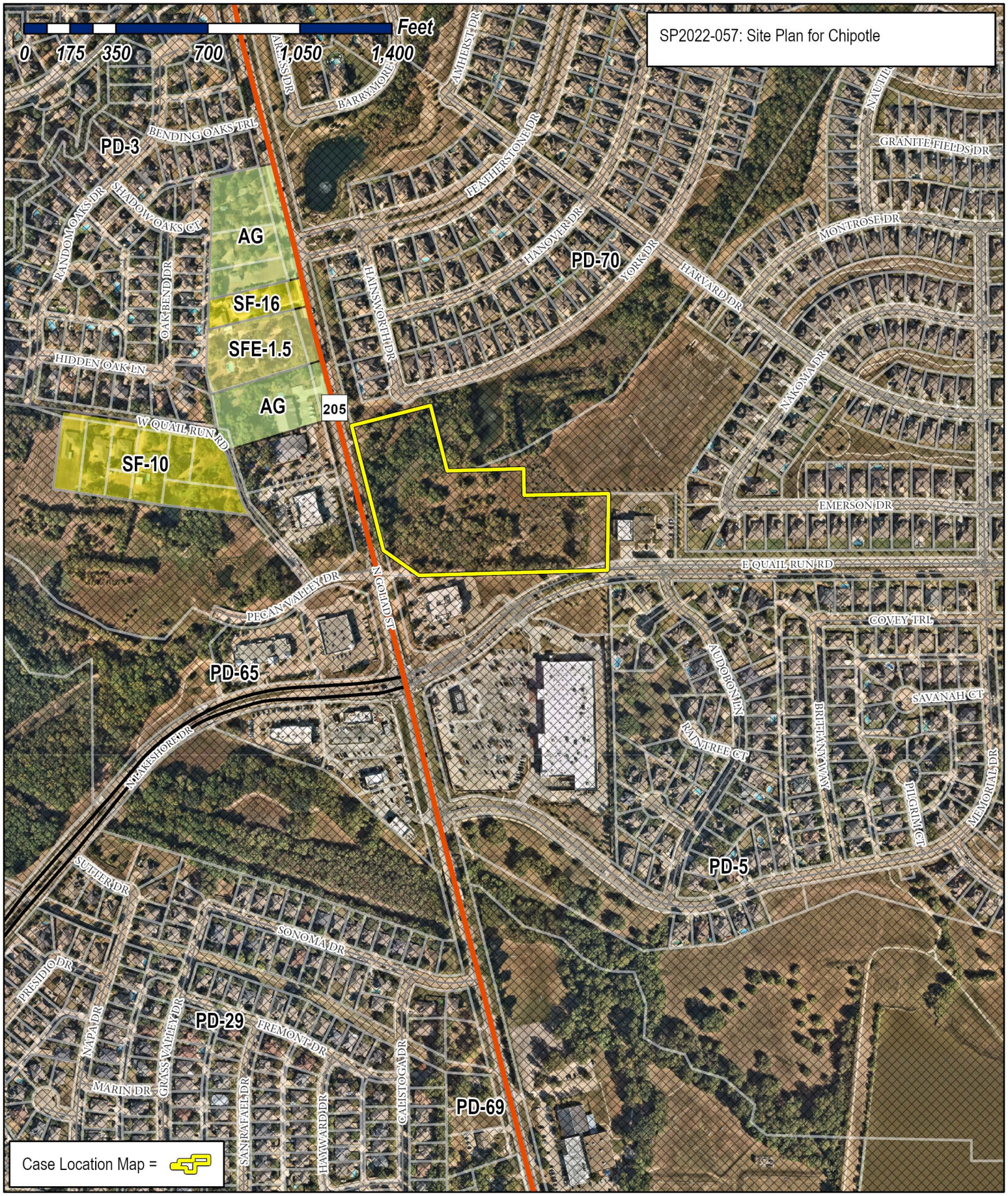
GIVEN UNDER MY HAND AND SEAL OF OFFICE ON THIS THE 11 *DAY OF* January *20* 22

OWNER'S SIGNATURE

NOTARY PUBLIC IN AND FOR THE STATE OF TEXAS Lisa Caldwell

LISA DIANE CALDWELL
Notary ID #742049
My Commission Expires
May 26, 2025

MY COMMISSION EXPIRES



City of Rockwall

Planning & Zoning Department
385 S. Goliad Street
Rockwall, Texas 75087
(P): (972) 771-7745
(W): www.rockwall.com

The City of Rockwall GIS maps are continually under development and therefore subject to change without notice. While we endeavor to provide timely and accurate information, we make no guarantees. The City of Rockwall makes no warranty, express or implied, including warranties of merchantability and fitness for a particular purpose. Use of the information is the sole responsibility of the user.

513 Main Street
Suite 300
Fort Worth, Texas 76102
Office: 817.820.0433
Fax: 682.224.8917
roguearchitects.com

ROGUE ARCHITECTS

December 7, 2022

Chipotle Mexican Grill (Shell)
NWQ N. Goliad & E. Quail Run Rd
Rockwall, TX 75087

On behalf of DuWest Realty, we wish to submit a variance request to the City of Rockwall Planning and Zoning Department as part of our façade elevation plan submittal.

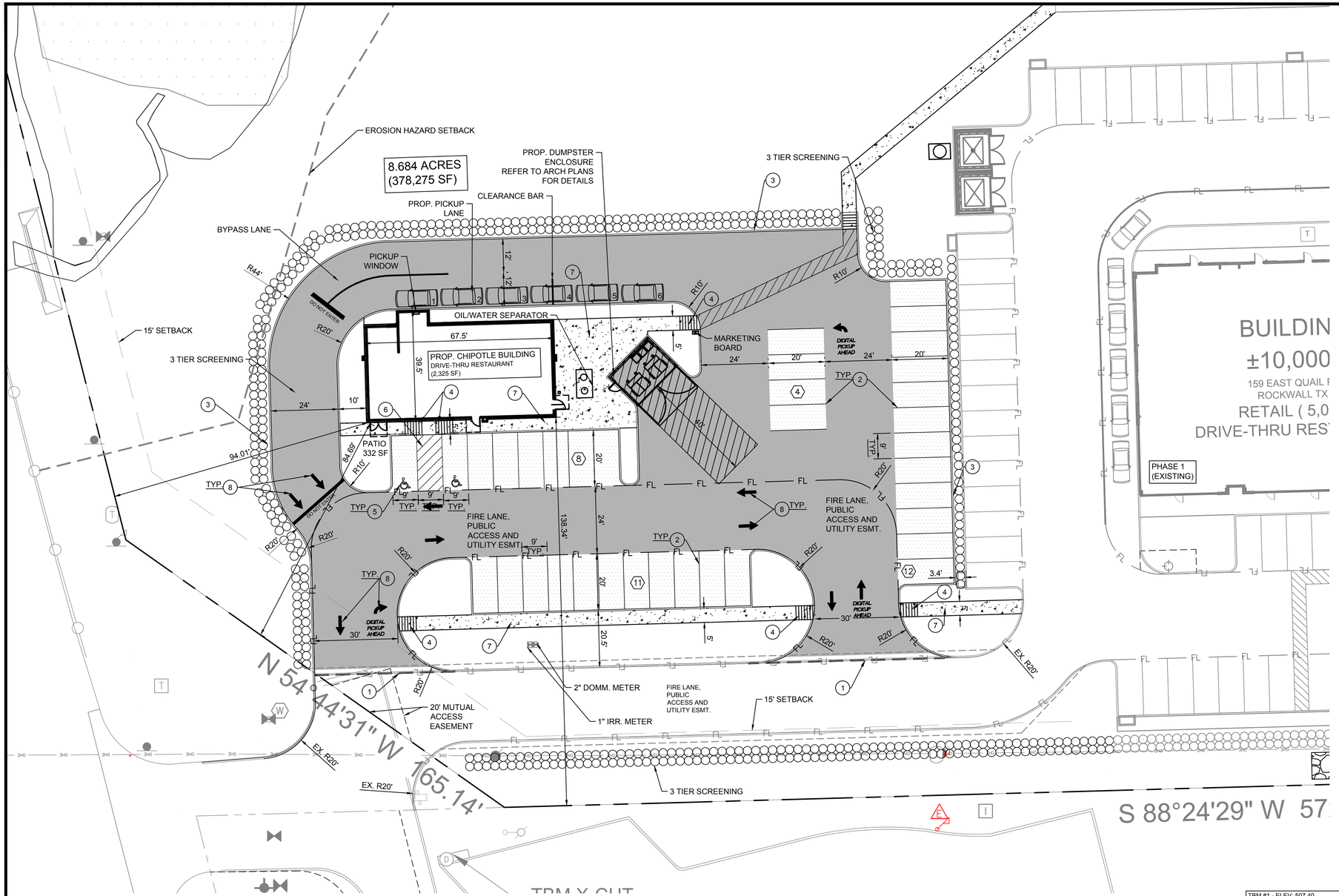
Chipotle Mexican Grill, to be located in Stone Creek Balance Ltd. Abstract No. 131 proposed new build will use materials consistent with the surrounding building in the overlay district. The design incorporates cantilevered canopies, recesses and projections (main entry), an outdoor patio, architecturally detailed herringbone brick on the pickup lane side of the building, an articulated cornice line, and varied parapet heights.

We request the following variance:

1. Roof Design Standards: Pitched roof for buildings under 6,000 sqft.
    a. Additional masonry detailing has been provided to exceed architectural design requirements. Owner wishes the be granted a variance to preserve corporate identity.

Thank you for your consideration,

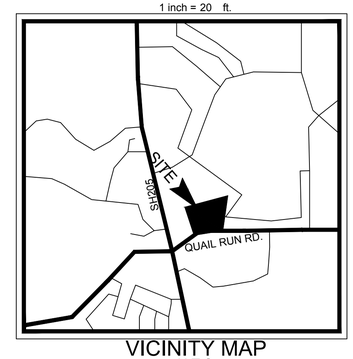
Taylor Grandorf
Architect | Project Manager
817-820-0433



GRAPHIC SCALE

20 0 10 20 40

1 inch = 20 ft.



VICINITY MAP
N.T.S.

CONSTRUCTION SCHEDULE	
	PROPOSED STANDARD DUTY CONCRETE PAVEMENT
	PROPOSED HEAVY DUTY CONCRETE PAVEMENT
	PROPOSED SIDEWALK CONCRETE PAVEMENT
	PROPERTY LINE
	PROPOSED CONCRETE CURB AND GUTTER
FL	PROPOSED FIRE LANE, PUBLIC ACCESS ADN UTILITY EASEMENT
	PROPOSED SAWCUT
4	PARKING COUNT

CONSTRUCTION SCHEDULE	
1	PROP. FULL DEPTH SAWCUT
2	PROP. 4" PARKING STALL STRIPING COLOR: WHITE (TYP)
3	PROP. CURB & GUTTER
4	PROP. PEDESTRIAN RAMP
5	PROP. HANDICAP SYMBOL
6	PROP. PAVEMENT STRIPING
7	PROP. SIDEWALK
8	PROP. ARROW PAVEMENT STRIPING

PARKING DATA TABLE	
PARKING REQ.	
DRIVE-THRU RESTAURANT (2,325 SF) 1/ 100 SF	24 SPACES
STANDARD PARKING	33 SPACES
ADA PARKING	2 SPACES
PARKING PROVIDED	35 SPACES (2 ADA)

SITE DATA TABLE			
	PHASE 2 (CHIPOTLE)	PHASE 1 (EXISTING)	TOTAL
SITE AREA	8.684 AC (378,275 SF)	8.684 AC (378,275 SF)	8.684 AC (378,275 SF)
ZONING	PD-70	PD-70	PD-70
PROPOSED USE	DRIVE-THRU RESTAURANT	RETAIL/ DRIVE-THRU RESTAURANT	RETAIL/ DRIVE-THRU RESTAURANT
BUILDING SIZE	2,325 SF	BUILDING B- 10,000 SF BUILDING C- 10,000 SF	20,325 SF
PATIO AREA	332 SF	2,777 SF	3,109 SF
LOT COVERAGE	.06 %	5.2 %	5.26 %
FLOOR TO AREA RATIO	0.00 : 1	0.05 : 1	0.06 :1
BUILDING STORIES	1 STORY	1 STORY	1 STORY
TOTAL IMPERVIOUS	29,064 SF (0.8%)	116,406 SF (30.8%)	145,138 SF (38.3%)
OPEN SPACE	8.62 AC (92 %)	6.04 AC (69.2%)	5.4 AC (61.7 %)

TBM #1 - ELEV: 507.40
AN "X" CUT SET APPROXIMATELY 44.2' SOUTH AND 46.9' WEST FROM THE SOTUH EAST PROPERTY CORNER ALONG QUAL RD.

TBM #2 - ELEV: 489.60
AND "X" CUT SET APPROXIMATELY 16.6' SOUTH AND 18.6' WEST FROM THE SOTUWEST PROPERTY CORNER ALONG QUAL RD.

TBM #3 - ELEV: 486.4
AND "X" CUT SET APPROXIMATELY 176.7' SOUTH AND 103.1' EAST FROM THE SOTUH EAST PROPERTY CORNER ALONG QUAIL RD.

ALL RESPONSIBILITY FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN.

NOTES:

1. A SEPARATE SIGNAGE PERMIT IS REQUIRED BY THE CITY OF ROCKWALL.
2. ALL WALLS 3' IN HEIGHT OR GREATER SHALL BE DESIGNED BY AN ENGINEER, LICENSED IN THE STATE OF TEXAS.
3. ALL WALLS MUST BE ROCK OR STONE FACE. NO WALLS SHALL BE SMOOTH CONCRETE.
4. NO TREES SHALL BE PLANTED WITHIN 10' OF NON-STEEL ENCASED PUBLIC UTILITIES.
5. SOD MUST BE LAID WITHIN ALL DISTURBED R.O.W. BEFORE ACCEPTANCE OF PROJECT.

DUWEST ROCKWALL, TX

LEGAL DESCRIPTION AND OR ADDRESS:

STONE CREEK BALANCE LTD
ABSTRACT. NO 131
8.684 AC (378,275 SF)

OWNER:
DuWEST REALTY, LLC
4403 N.CENTRAL EXWAY SUITE #200
DALLAS, TX 75025
CONTACT: BOWEN HENDRIX
PH: 214.918.1804

APPLICANT:
CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
PH: 817.281.0572

CASE NUMBER

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING AND ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____.

WITNESS OUR HANDS THIS ____ DAY OF _____.

PLANNING AND ZONING COMMISSION, CHAIRMAN

DIRECTOR OF PLANNING AND ZONING

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
1903 CENTRAL DR, SUITE #406
BEDFORD, TX 76021
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM

PRELIMINARY
FOR REVIEW ONLY
Not for construction purposes.
CLAYMOORE ENGINEERING
ENGINEERING AND PLANNING CONSULTANTS
Engineer DREW DONOSKY
P.E. No. 125651 Date 1/3/2023

DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

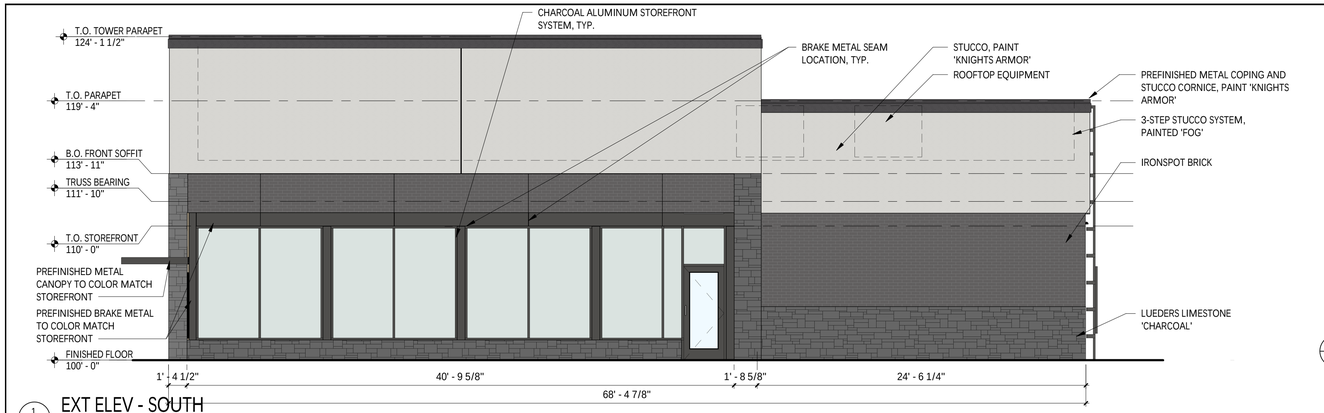
CITY SITE PLAN

DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	1/3/2023

SHEET
SP-1

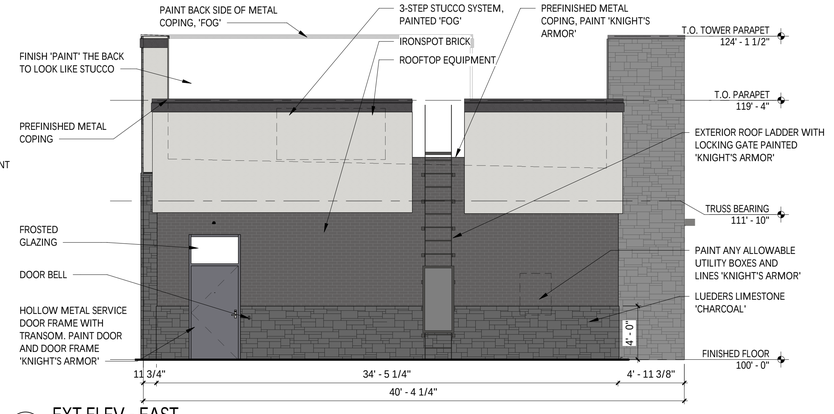
File No. 2022-002
CASE # Z2022-042

PLOTTED BY: LYNN ROWLAND
PLOT DATE: 1/3/2023 10:28 AM
LOCATION: Z:\PROJECTS\2022-175 DUWEST ROCKWALL PH. 2\CADD\SHEETS\SP-1 SITE PLAN.DWG
LAST SAVED: 12/28/2022 11:47 AM

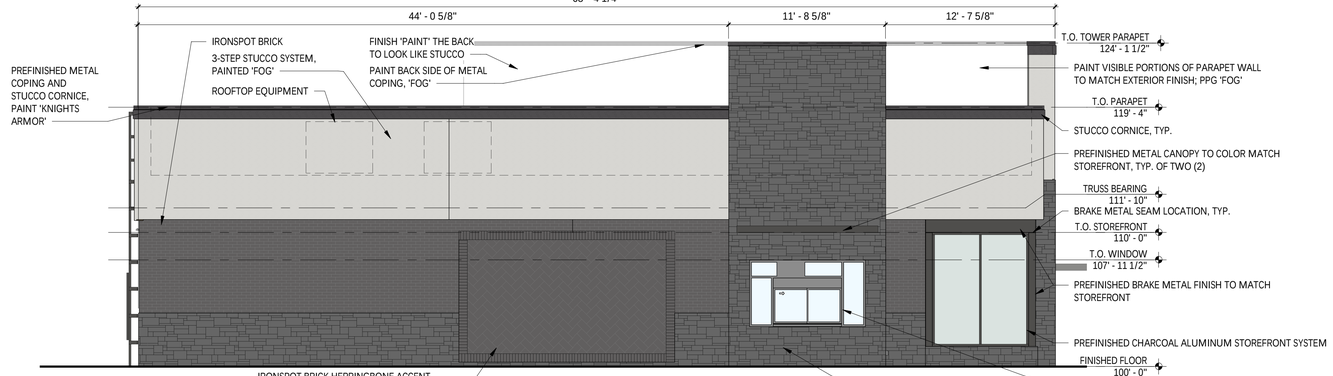


1 F000 EXT ELEV - SOUTH
3/16" = 1'-0"

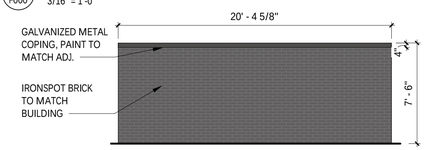
3 F000 EXT ELEV - WEST
3/16" = 1'-0"



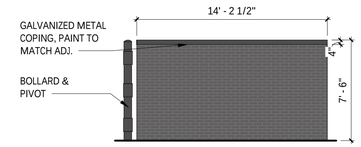
2 F000 EXT ELEV - EAST
3/16" = 1'-0"



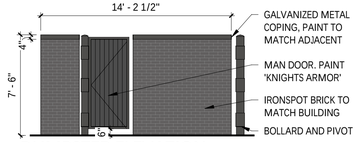
4 F000 EXT ELEV - NORTH
3/16" = 1'-0"



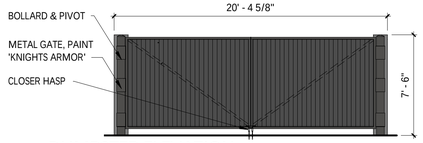
10 F000 DUMPSTER ELEVATION
3/16" = 1'-0"



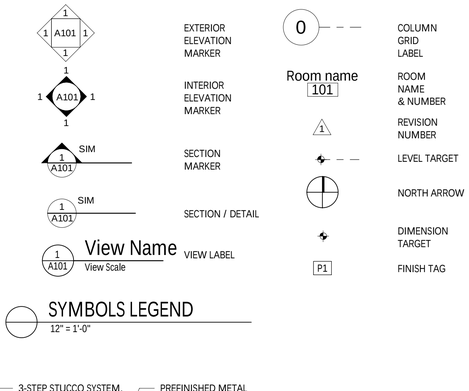
11 F000 DUMPSTER ELEVATION
3/16" = 1'-0"



9 F000 DUMPSTER ELEVATION
3/16" = 1'-0"



8 F000 DUMPSTER ELEVATION
3/16" = 1'-0"



GENERAL NOTES

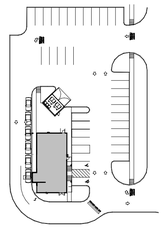
1. THIS FACADE PLAN IS FOR CONCEPTUAL PURPOSES ONLY. ALL BUILDING PLANS REQUIRE REVIEW AND APPROVAL BY DEVELOPMENT SERVICES.
2. ALL MECHANICAL UNITS SHALL BE SCREENED FROM PUBLIC VIEW AS REQUIRED BY THE ZONING ORDINANCE.
3. WHEN PERMITTED, EXPOSED UTILITY BOXES AND CONDUITS SHALL BE PAINTED TO MATCH THE BUILDING.
4. ALL SIGNAGE AREAS AND LOCATIONS ARE SUBJECT TO APPROVAL BY DEVELOPMENT SERVICES.
5. AN ONSITE MOCKUP OF THE BUILDING MATERIALS TO BE USED ON THE STRUCTURE SHALL BE INSTALLED AND REVIEWED BY THE PLANNING DIVISION. MATERIALS SHALL NOT BE PLACED ONT HE STRUCTURE UNTIL A GREEN TAG IS RECEIVED BY THE PLANNING DIVISION.
6. AN APPROVED FACADE PLAN SHALL BE POSED ONSITE AT ALL TIMES.

FINISH MATERIALS

STONE		**QUALITY STONE** LUEDERS LIMESTONE 'CHARCOAL'
BRICK		**ENDICOTT IRONSPOT** DARK IRONSPOT
STUCCO		3-STEP STUCCO PPG 'FOG'
MT-01		METAL PPG 'KNIGHTS ARMOR'
STRFNT		**KAWNEER** PERMAFLOUR CHARCOAL

NOTE: THREE COAT STUCCO IS APPLIED IN THREE LAYERS. 3/8-INCH THICK SCRATCH COAT, 3/8-INCH THICK BROWN COAT, AND APPROXIMATE 1/8 INCH THICK FINISH COAT. THE APPROXIMATELY 7/8-INCH THREE COAT SYSTEM IS APPLIED OVER AN APPROVED WEATHER-RESISTIVE BARRIER AND METAL LATH EITHER BY HAND USING A TROWEL OR BY MACHINE APPLICATION

KEY - SITE PLAN



0 8' 16' 24' 32'
Scale: 3/16" = 1'-0"

MATERIAL CALCULATION										
	NORTH		EAST		SOUTH		WEST		TOTAL	
MATERIAL	S.F.	%	S.F.	%	S.F.	%	S.F.	%	S.F.	%
TOTAL ELEVATION AREA	1379	100	778	100	1481	100	900	100	4538	100
NON-GLAZED DOORS AND WINDOWS	0	0%	27	3.47%	0	0%	0	0%	27	0.71%
GLAZED DOORS AND WINDOWS	104	7.54%	9	1.16%	326	22.01%	270	30.00%	709	15.62%
TOTAL (WITHOUT GLAZED/NON-GLAZED...	1275	92.46%	769	98.84%	1155	77.99%	630	70.00%	3829	84.38%
STONE	399	31.29%	258	33.55%	231	20.00%	204	32.38%	1092	28.52%
IRON SPOT BRICK - TO MATCH ADJACENT BUILDING	388	30.43%	235	30.56%	288	24.72%	64	10.16%	975	25.46%
STUCCO (3 STEP)	471	36.94%	249	32.38%	570	49.35%	316	50.16%	1606	41.94%
METAL ACCENT	17	1.33%	0	0%	66	5.67%	46	7.3%	129	3.37%

RESTAURANT WITH DRIVE-THRU
STONE CREEK BALANCE LTD
ABSTRACT NO 131

FACADE PLAN: #SP2022-057
SUBMITTAL DATE: 01/03/2022

ARCHITECT:
ROGUE ARCHITECTS
513 MAIN STREET, STE 300
FORT WORTH, TX 76102
CONTACT: ASHLEY MORELAND
T: (817) 820-0433

OWNER:
DUWEST REALTY
4403 N. CENTRAL EXPWY, #200
DALLAS, TX 75205
CONTACT: BOWEN HENDRIX
T: (214) 918-1804

ENGINEER
CLAYMOORE ENGINEERING
903 CENTRAL DRIVE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
T: (817) 281-0572

Consultant:
ARCHITECT OF RECORD
ROGUE ARCHITECTS
513 MAIN STREET, SUITE 300
FORT WORTH, TEXAS 76102
(817) 820-0433

SEAL
REGISTERED ARCHITECT
JOHN J. RORSCHACH III
15205
STATE OF TEXAS

FACADE PLAN - 01/03/2023

DUWEST
CREATING, ENHANCING & PROTECTING VALUE

ROCKWALL NORTH SHELL
3000 N. GOLIAD STREET,
ROCKWALL, TX

Issue Record:

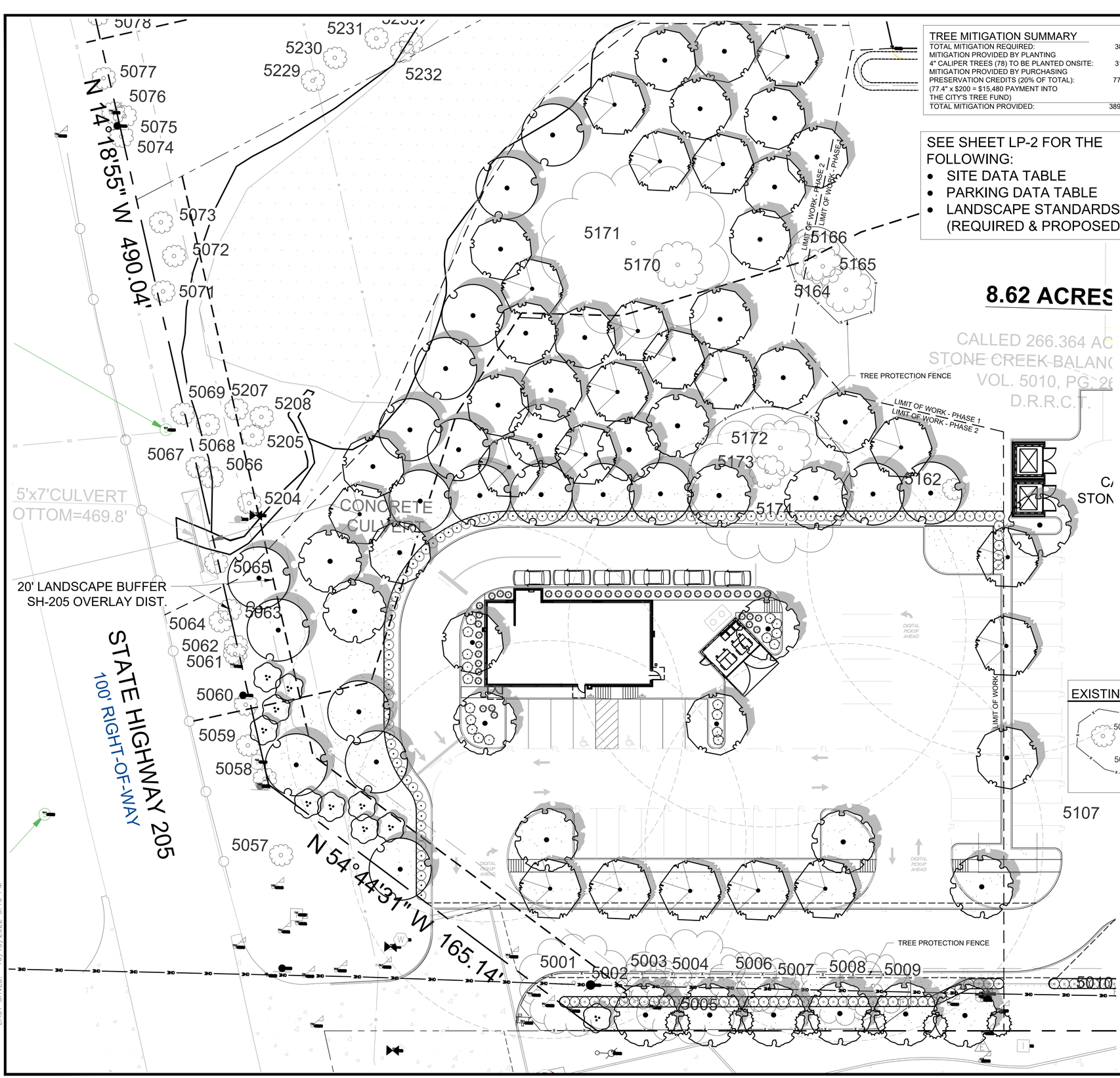
Revisions:

Drawn: T. GRANDORF
Checked: A. MORELAND

Project No.
ROGUE #22-0547

Contents:
FACADE PLAN

F000



TREE MITIGATION SUMMARY	
TOTAL MITIGATION REQUIRED:	387"
MITIGATION PROVIDED BY PLANTING 4" CALIPER TREES (78) TO BE PLANTED ONSITE:	312"
MITIGATION PROVIDED BY PURCHASING PRESERVATION CREDITS (20% OF TOTAL): (77.4" x $200 = $15,480 PAYMENT INTO THE CITY'S TREE FUND)	77.4"
TOTAL MITIGATION PROVIDED:	389.4"

SEE SHEET LP-2 FOR THE FOLLOWING:

- SITE DATA TABLE
- PARKING DATA TABLE
- LANDSCAPE STANDARDS (REQUIRED & PROPOSED)

PLANT SCHEDULE

CANOPY TREES	QTY	BOTANICAL / COMMON NAME	CAL	SIZE
	20	ACER RUBRUM 'OCTOBER GLORY' OCTOBER GLORY MAPLE	4" CAL.	16'-18' HT
	19	QUERCUS POLYMORPHA MEXICAN WHITE OAK	4" CAL MIN	14`-16` HT
	19	QUERCUS VIRGINIANA LIVE OAK	4" CAL MIN	14`-16` HT
	20	ULMUS CRASSIFOLIA CEDAR ELM	4" CAL.	16`-18` HT

ACCENT TREES	QTY	BOTANICAL / COMMON NAME	CAL	SIZE
	10	CERCIS CANADENSIS EASTERN REDBUD 3-5 STEMS	2" CAL MIN	8` -10` HT
	6	ILEX VOMITORIA YAUPON HOLLY	2" CAL MIN	8` -10` HT

SHRUBS	QTY	BOTANICAL / COMMON NAME	CONT
	43	HESPERALOE PARVIFLORA RED YUCCA	3 GAL
	90	ILEX CORNUTA 'DWF. BURFORD' DWARF BURFORD HOLLY	5 GAL
	19	LANTANA X `NEW GOLD` NEW GOLD LANTANA	3 GAL
	57	MYRTUS COMMUNIS 'DON'S DWARF' DON'S DWARF WAX MYRTLE	5 GAL

GROUND COVER	QTY	BOTANICAL / COMMON NAME	CONT
	14,665 SF	CYNODON 'TIFWAY 419' TIFWAY 419 BERMUDA GRASS	SOD

NOTE: THE DEVELOPER SHALL ESTABLISH GRASS AND MAINTAIN THE SODDED AREA, INCLUDING WATERING, UNTIL A PERMANENT STAND OF GRASS IS OBTAINED AT WHICH TIME THE PROJECT WILL BE ACCEPTED BY THE CITY. A STAND OF GRASS SHALL CONSIST OF 75%-80% COVERAGE AND A MINIMUM O F 1" IN HEIGHT AS DETERMINED BY THE CITY.

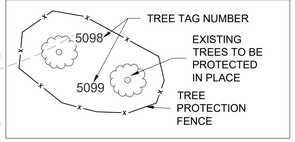
MULCHES

AFTER ALL PLANTING IS COMPLETE, CONTRACTOR SHALL INSTALL 3" THICK LAYER OF 1-1/2" SHREDDED WOOD MULCH, NATURAL (UNDYED), IN ALL PLANTING AREAS (EXCEPT FOR TURF AND SEEDED AREAS). CONTRACTOR SHALL SUBMIT SAMPLES OF ALL MULCHES TO LANDSCAPE ARCHITECT AND OWNER FOR APPROVAL PRIOR TO CONSTRUCTION. ABSOLUTELY NO EXPOSED GROUND SHALL BE LEFT SHOWING ANYWHERE ON THE PROJECT AFTER MULCH HAS BEEN INSTALLED (SUBJECT TO THE CONDITIONS AND REQUIREMENTS OF THE "GENERAL GRADING AND PLANTING NOTES" AND SPECIFICATIONS).

ROOT BARRIERS

THE CONTRACTOR SHALL INSTALL ROOT BARRIERS NEAR ALL NEWLY-PLANTED TREES THAT ARE LOCATED WITHIN FIVE (5) FEET OF PAVING OR CURBS. ROOT BARRIERS SHALL BE "CENTURY" OR "DEEP-ROOT" 24" DEEP PANELS (OR EQUAL). BARRIERS SHALL BE LOCATED IMMEDIATELY ADJACENT TO HARDSCAPE. INSTALL PANELS PER MANUFACTURER'S RECOMMENDATIONS. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR USE ROOT BARRIERS OF A TYPE THAT COMPLETELY ENCIRCLE THE ROOTBALL.

EXISTING TREE LEGEND



Scale 1" = 20'

DUWEST ROCKWALL, TX

LEGAL DESCRIPTION AND OR ADDRESS:

STONE CREEK BALANCE LTD
ABSTRACT. NO 131
8.684 AC (378,275 SF)

OWNER:
DuWEST REALTY, LLC
4403 N.CENTRAL EXWAY SUITE #200
DALLAS, TX 75025
CONTACT: BOWEN HENDRIX
PH: 214.918.1804

APPLICANT:
CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
PH: 817.281.0572

CASE NUMBER
Z2022-003

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING AND ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____.

WITNESS OUR HANDS THIS ____ DAY OF _____.

PLANNING AND ZONING COMMISSION, CHAIRMAN

DIRECTOR OF PLANNING AND ZONING

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM
1903 CENTRAL DR, SUITE #406
BEDFORD, TX 76021

REGISTERED LANDSCAPE ARCHITECT
DARCY R. BRANDON
3423
STATE OF TEXAS

10/13/2022

DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

EVERGREEN DESIGN GROUP
(800) 680-6630
15455 Dallas Pkwy., Ste 600
Addison, TX 75001
www.EvergreenDesignGroup.com

LANDSCAPE PLANTING PLAN

DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	10/13/2022

SHEET
LP-1

File No. 2022-002

CASE # SP2022-042

PLOTTED BY: DARCY BRANDON
PLOT DATE: 10/13/2022 3:12 PM
LOCATION: C:\USERS\DARCY\DOCUMENTS\DBLA_PROJECTS\2022\EDG\CHIPOLTE DUWEST - ROCKWALL, TX\XREFS\2022-10-10 DUWEST ROCKWALL PHASE 2.DWG
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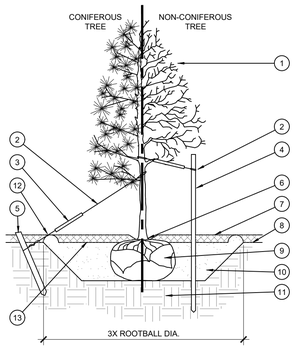
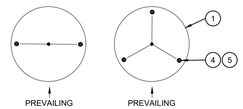


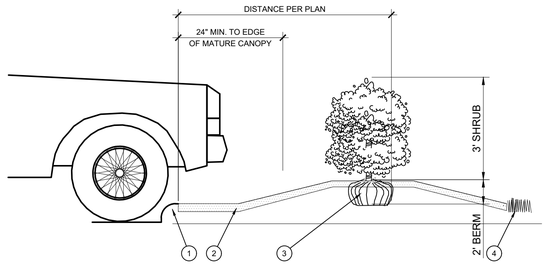
1. TREE CANOPY.
2. CINCH-TIES (24" BOX/2" CAL. TREES AND SMALLER) OR 12 GAUGE GALVANIZED WIRE WITH NYLON TREE STRAPS AT TREE AND STAKE (36" BOX/2.5" CAL. TREES AND LARGER). SECURE TIES OR STRAPS TO TRUNK JUST ABOVE LOWEST MAJOR BRANCHES.
3. 24" X 3/4" P.V.C. MARKERS OVER WIRES.
4. GREEN STEEL T-POSTS. EXTEND POSTS 12" MIN. INTO UNDISTURBED SOIL.
5. PRESSURE-TREATED WOOD DEADMAN, TWO PER TREE (MIN.). BURY OUTSIDE OF PLANTING PIT AND 18" MIN. INTO UNDISTURBED SOIL.
6. TRUNK FLARE.
7. MULCH, TYPE AND DEPTH PER PLANS. DO NOT PLACE MULCH WITHIN 6" OF TRUNK.
8. FINISH GRADE.
9. ROOT BALL.
10. BACKFILL. AMEND AND FERTILIZE ONLY AS RECOMMENDED IN SOIL FERTILITY ANALYSIS.
11. UNDISTURBED NATIVE SOIL.
12. 4" HIGH EARTHEN WATERING BASIN.
13. FINISH GRADE.

STAKING EXAMPLES (PLAN VIEW)



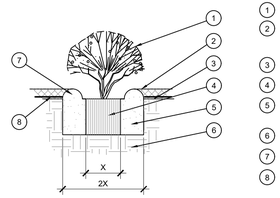
NOTES:
1. SCARIFY SIDES OF PLANTING PIT PRIOR TO SETTING TREE.
2. REMOVE EXCESS SOIL APPLIED ON TOP OF THE ROOTBALL THAT COVERS THE ROOT FLARE. THE PLANTING HOLE DEPTH SHALL BE SUCH THAT THE ROOTBALL RESTS ON UNDISTURBED SOIL, AND THE ROOT FLARE IS 2"-4" ABOVE FINISH GRADE.
3. FOR B&B TREES, CUT OFF BOTTOM 1/3 OF WIRE BASKET BEFORE PLACING TREE IN HOLE, CUT OFF AND REMOVE REMAINDER OF BASKET AFTER TREE IS SET IN HOLE. REMOVE ALL NYLON TIES, TWINE, ROPE, AND OTHER PACKING MATERIAL. REMOVE AS MUCH BURLAP FROM AROUND ROOTBALL AS IS PRACTICAL.
4. REMOVE ALL NURSERY STAKES AFTER PLANTING.
5. FOR TREES 36" BOX/2.5" CAL. AND LARGER, USE THREE STAKES OR DEADMEN (AS APPROPRIATE), SPACED EVENLY AROUND TREE.
6. STAKING SHALL BE TIGHT ENOUGH TO PREVENT TRUNK FROM BENDING, BUT LOOSE ENOUGH TO ALLOW SOME TRUNK MOVEMENT IN WIND.

A TREE PLANTING
SCALE: NOT TO SCALE



1. CURB.
2. MULCH LAYER.
3. PLANT.
4. TURF (WHERE SHOWN ON PLAN).

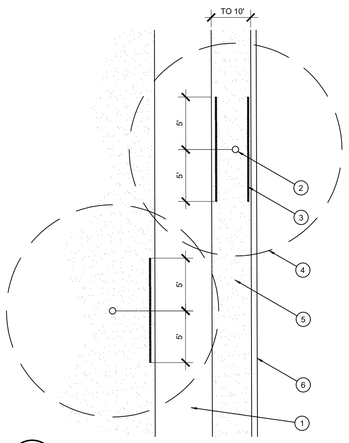
D PLANTING AT PARKING AREA
SCALE: NOT TO SCALE



1. SHRUB, PERENNIAL, OR ORNAMENTAL GRASS.
2. MULCH, TYPE AND DEPTH PER PLANS. PLACE NO MORE THAN 1" OF MULCH WITHIN 6" OF PLANT CENTER.
3. FINISH GRADE.
4. ROOT BALL.
5. BACKFILL. AMEND AND FERTILIZE ONLY AS RECOMMENDED IN SOIL FERTILITY ANALYSIS.
6. UNDISTURBED NATIVE SOIL.
7. 3" HIGH EARTHEN WATERING BASIN.
8. WEED FABRIC UNDER MULCH.

B SHRUB AND PERENNIAL PLANTING
SCALE: NTS

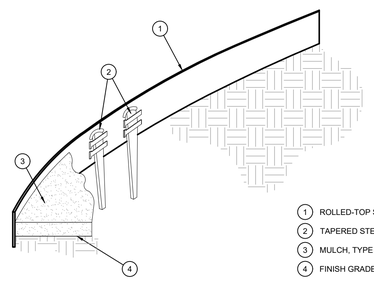
OPEN LANDSCAPE — PARKWAY OR ISLAND



1. TYPICAL WALKWAY OR PAVING
2. TREE TRUNK
3. LINEAR ROOT BARRIER MATERIAL. SEE PLANTING NOTES FOR TYPE AND MANUFACTURER. INSTALL PER MANUFACTURER'S SPECIFICATIONS.
4. TREE CANOPY
5. TYPICAL PLANTING AREA
6. TYPICAL CURB AND GUTTER

NOTES:
1) INSTALL ROOT BARRIERS NEAR ALL NEWLY-PLANTED TREES THAT ARE LOCATED WITHIN FIVE (5) FEET OF PAVING OR CURBS.
2) BARRIERS SHALL BE LOCATED IMMEDIATELY ADJACENT TO HARDSCAPE. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR USE ROOT BARRIERS OF A TYPE THAT COMPLETELY ENCIRCLE THE ROOTBALL.

F ROOT BARRIER - PLAN VIEW
SCALE: NOT TO SCALE



1. ROLLED-TOP STEEL EDGING PER PLANS.
2. TAPERED STEEL STAKES.
3. MULCH, TYPE AND DEPTH PER PLANS.
4. FINISH GRADE.

NOTES:
1) INSTALL EDGING SO THAT STAKES WILL BE ON INSIDE OF PLANTING BED.
2) BOTTOM OF EDGING SHALL BE BURIED A MINIMUM OF 1" BELOW FINISH GRADE.
3) TOP OF MULCH SHALL BE 1" LOWER THAN TOP OF EDGING.

D STEEL EDGING
SCALE: NOT TO SCALE

PARKING DATA TABLE

PARKING REQUIRED	
DRIVE-THRU RESTAURANT (2,325 SF) 1 SPACE / 100 SF	24 SPACES
STANDARD PARKING	33 SPACES
ADA PARKING	2 SPACES
PARKING PROVIDED	
TOTAL PARKING	33 SPACES
ADA PARKING	2 SPACES

SITE DATA TABLE

	PHASE 2 (CHIPOTLE)	PHASE 1 (EXISTING)	TOTAL
SITE AREA	8.684 AC / 378,275 SF	8.684 AC / 378,275 SF	8.684 AC / 378,275 SF
ZONING	PD-70 (Planned Development)	PD-70 (Planned Development) GR (General Retail Dist.)	PD-70
PROPOSED USE	DRIVE-THRU RESTAURANT	RETAIL/DRIVE-THRU RESTAURANT	RETAIL/DRIVE-THRU RESTAURANT
BUILDING SIZE	2,325 SF	BLDG. B - 10,000 SF BLDG. C - 10,000 SF	20,325 SF
PATIO AREA	332 SF	2,777 SF	3,109 SF
LOT COVERAGE	0.06%	5.2%	5.26%
FLOOR AREA RATIO	0.00:1	0.05:1	0.06:1
BUILDING HEIGHT	1-STORY	1-STORY	1-STORY
IMPERVIOUS AREA	29,064 SF (0.8%)	116,406 SF (30.8%)	145,138 SF (38.3%)
OPEN SPACE	8.62 AC (92%)	6.04 AC (69.2%)	5.4 AC (61.7%)

GENERAL GRADING AND PLANTING NOTES

1. BY SUBMITTING A PROPOSAL FOR THE LANDSCAPE PLANTING SCOPE OF WORK, THE CONTRACTOR CONFIRMS THAT HE HAS READ, AND WILL COMPLY WITH, THE ASSOCIATED NOTES, SPECIFICATIONS, AND DETAILS WITH THIS PROJECT.
2. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL EXISTING VEGETATION (EXCEPT WHERE NOTED TO REMAIN).
3. IN THE CONTEXT OF THESE PLANS, NOTES, AND SPECIFICATIONS, "FINISH GRADE" REFERS TO THE FINAL ELEVATION OF THE SOIL SURFACE (NOT TOP OF MULCH) AS INDICATED ON THE GRADING PLANS.
   a. BEFORE STARTING WORK, THE LANDSCAPE CONTRACTOR SHALL VERIFY THAT THE ROUGH GRADES OF ALL LANDSCAPE AREAS ARE WITHIN +/-0.1' OF FINISH GRADE. SEE SPECIFICATIONS FOR MORE DETAILED INSTRUCTION ON TURF AREA AND PLANTING BED PREPARATION.
   b. CONSTRUCT AND MAINTAIN FINISH GRADES AS SHOWN ON GRADING PLANS, AND CONSTRUCT AND MAINTAIN SLOPES AS RECOMMENDED BY THE GEOTECHNICAL REPORT. ALL LANDSCAPE AREAS SHALL HAVE POSITIVE DRAINAGE AWAY FROM STRUCTURES AT THE MINIMUM SLOPE SPECIFIED IN THE REPORT AND ON THE GRADING PLANS, AND AREAS OF POTENTIAL PONDING SHALL BE REGRADED TO BLEND IN WITH THE SURROUNDING GRADES AND ELIMINATE PONDING POTENTIAL.
   c. THE LANDSCAPE CONTRACTOR SHALL DETERMINE WHETHER OR NOT THE EXPORT OF ANY SOIL WILL BE NEEDED, TAKING INTO ACCOUNT THE ROUGH GRADE PROVIDED, THE AMOUNT OF SOIL AMENDMENTS TO BE ADDED (**BASED ON A SOIL TEST**, PER SPECIFICATIONS), AND THE FINISH GRADES TO BE ESTABLISHED.
   d. ENSURE THAT THE FINISH GRADE IN SHRUB AREAS IMMEDIATELY ADJACENT TO WALKS AND OTHER WALKING SURFACES, AFTER INSTALLING SOIL AMENDMENTS, IS 3" BELOW THE ADJACENT FINISH SURFACE, IN ORDER TO ALLOW FOR PROPER MULCH DEPTH. TAPER THE SOIL SURFACE TO MEET FINISH GRADE, AS SPECIFIED ON THE GRADING PLANS, AT APPROXIMATELY 18" AWAY FROM THE WALKS.
   e. ENSURE THAT THE FINISH GRADE IN TURF AREAS IMMEDIATELY ADJACENT TO WALKS AND OTHER WALKING SURFACES, AFTER INSTALLING SOIL AMENDMENTS, IS 1" BELOW THE FINISH SURFACE OF THE WALKS. TAPER THE SOIL SURFACE TO MEET FINISH GRADE, AS SPECIFIED ON THE GRADING PLANS, AT APPROXIMATELY 18" AWAY FROM THE WALKS.
   f. SHOULD ANY CONFLICTS AND/OR DISCREPANCIES ARISE BETWEEN THE GRADING PLANS, GEOTECHNICAL REPORT, THESE NOTES AND PLANS, AND ACTUAL CONDITIONS, THE CONTRACTOR SHALL IMMEDIATELY BRING SUCH ITEMS TO THE ATTENTION OF THE LANDSCAPE ARCHITECT, GENERAL CONTRACTOR, AND OWNER.
4. ALL PLANT LOCATIONS ARE DIAGRAMMATIC. ACTUAL LOCATIONS SHALL BE VERIFIED WITH THE LANDSCAPE ARCHITECT OR DESIGNER PRIOR TO PLANTING. THE LANDSCAPE CONTRACTOR SHALL ENSURE THAT ALL REQUIREMENTS OF THE PERMITTING AUTHORITY ARE MET (I.E., MINIMUM PLANT QUANTITIES, PLANTING METHODS, TREE PROTECTION METHODS, ETC.).
   a. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR DETERMINING PLANT QUANTITIES; PLANT QUANTITIES SHOWN ON LEGENDS AND CALLOUTS ARE FOR GENERAL INFORMATION ONLY. IN THE EVENT OF A DISCREPANCY BETWEEN THE PLAN AND THE PLANT LEGEND, THE PLANT QUANTITY AS SHOWN ON THE PLAN (FOR INDIVIDUAL SYMBOLS) OR CALLOUT (FOR GROUNDCOVER PATTERNS) SHALL TAKE PRECEDENCE.
   b. **NO SUBSTITUTIONS OF PLANT MATERIALS SHALL BE ALLOWED WITHOUT THE WRITTEN PERMISSION OF THE LANDSCAPE ARCHITECT.** IF SOME OF THE PLANTS ARE NOT AVAILABLE, THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT IN WRITING (VIA PROPER CHANNELS).
   c. THE CONTRACTOR SHALL, AT A MINIMUM, PROVIDE REPRESENTATIVE PHOTOS OF ALL PLANTS PROPOSED FOR THE PROJECT. THE CONTRACTOR SHALL ALLOW THE LANDSCAPE ARCHITECT AND THE OWNER/OWNER'S REPRESENTATIVE TO INSPECT, AND APPROVE OR REJECT, ALL PLANTS DELIVERED TO THE JOBSITE.
   REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS FOR SUBMITTALS.
5. THE CONTRACTOR SHALL MAINTAIN THE LANDSCAPE IN A HEALTHY CONDITION FOR 90 DAYS AFTER ACCEPTANCE BY THE OWNER. REFER TO SPECIFICATIONS FOR CONDITIONS OF ACCEPTANCE FOR THE START OF THE MAINTENANCE PERIOD, AND FOR FINAL ACCEPTANCE AT THE END OF THE MAINTENANCE PERIOD.
6. SEE SPECIFICATIONS AND DETAILS FOR FURTHER REQUIREMENTS.

IRRIGATION CONCEPT

1. AN AUTOMATIC IRRIGATION SYSTEM SHALL BE INSTALLED AND OPERATIONAL BY THE TIME OF FINAL INSPECTION. THE ENTIRE IRRIGATION SYSTEM SHALL BE INSTALLED BY A LICENSED AND QUALIFIED IRRIGATION CONTRACTOR.
2. THE IRRIGATION SYSTEM WILL OPERATE ON POTABLE WATER, AND THE SYSTEM WILL HAVE APPROPRIATE BACKFLOW PREVENTION DEVICES INSTALLED TO PREVENT CONTAMINATION OF THE POTABLE SOURCE.
3. ALL NON-TURF PLANTED AREAS SHALL BE DRIP IRRIGATED. SODDED AND SEEDED AREAS SHALL BE IRRIGATED WITH SPRAY OR ROTOR HEADS AT 100% HEAD-TO-HEAD COVERAGE.
4. ALL PLANTS SHARING SIMILAR HYDROZONE CHARACTERISTICS SHALL BE PLACED ON A VALVE DEDICATED TO PROVIDE THE NECESSARY WATER REQUIREMENTS SPECIFIC TO THAT HYDROZONE.
5. THE IRRIGATION SYSTEM SHALL BE DESIGNED AND INSTALLED, TO THE MAXIMUM EXTENT POSSIBLE, TO CONSERVE WATER BY USING THE FOLLOWING DEVICES AND SYSTEMS: MATCHED PRECIPITATION RATE TECHNOLOGY ON ROTOR AND SPRAY HEADS (WHEREVER POSSIBLE), RAIN SENSORS, AND MULTI-PROGRAM COMPUTERIZED IRRIGATION CONTROLLERS FEATURING SENSORY INPUT CAPABILITIES.
6. ALL IRRIGATION SHALL MEET THE REQUIREMENTS OF THE CITY OF ROCKWALL'S UDC (SUBSECTION 05.04, OF ARTICLE 08)

LANDSCAPE STANDARDS

05.01 LANDSCAPE BUFFERS - NON-RESIDENTIAL	
REQ. ABUTTING A PUBLIC RIGHT-OF-WAY:	20' WIDE LANDSCAPE BUFFER W/ GROUND COVER, BERM, AND SHRUBBERY 30" HIGH + 1 CANOPY TREE & 1 ACCENT TREE PER 50 LIN. FEET OF FRONTAGE
ST. HWY 205 OVERLAY DISTRICT: ±246' STREET FRONTAGE	20' WIDE BUFFER REQ. W/ 2 CANOPY + 4 ACCENT TREES PER 100 LIN. FT. OF FRONTAGE; GROUND COVER, BUILT-UP BERM AND SHRUBBERY ALONG ENTIRE FRONTAGE
REQUIRED PLANTING:	5 CANOPY TREES, 10 ACCENT TREES, BERM W/ SHRUBS
PROVIDED 20' BUFFER:	1 EXIST. CANOPY TREES + 4 NEW CANOPY TREES; 10 ACCENT TREES W/ BERM AND SHRUBS
05.02 LANDSCAPE SCREENING	
REQ. HEADLIGHT SCREENING	HEAD-IN PARKING ADJ. TO STREET SHALL INCORP. MIN. 2' BERM W/ MATURE EVERGREEN SHRUBS ALONG ENTIRE PARKING AREAS
SCREENING PROVIDED:	N/A
SCREENING FROM RESIDENTIAL:	N/A
05.03 LANDSCAPE REQUIREMENTS - COMMERCIAL (C) DISTRICT	
TOTAL SITE AREA (CHIPOLTE ONLY):	±64,104 SF
LANDSCAPE AREA REQUIRED TOTAL SITE:	12,821 SF (20%)
LANDSCAPE PROVIDED, TOTAL SITE:	± 27,515 (43%)
LOCATION OF LANDSCAPING:	MIN. 50% OF REQ. LANDSCAPING SHALL BE LOCATED IN THE FRONT OF & ALONG THE SIDE OF BUILDINGS W/ STREET FRONTAGE. 12,821 x 50% = 6,410.5 SF
LANDSCAPE AREAS IN FRONT & SIDES OF BUILDINGS:	14,825 SF (115.6%)
MIN. SIZE OF AREAS	ALL REQ. LANDSCAPING SHALL BE NO LESS THAN 5' WIDE AND A MIN. OF 25 SF IN AREA
DETENTION BASINS	NONE PROPOSED
PARKING LOT LANDSCAPING	MIN. 5% OR 200 SF OF LANDSCAPING, WHICHEVER IS GREATER, IN THE INTERIOR OF PARKING LOT AREA.
PROPOSED PARKING AREA:	±24,630 SF
REQ. PARKING AREA LANDSCAPING:	24,630 x 5% =1,232
PROPOSED PARKING LOT LANDSCAPING:	±2,217 SF (9%)
	REQ. PARKING SPACES MUST BE WITHIN 80' OF A CANOPY TREE TRUNK

DUWEST ROCKWALL

LEGAL DESCRIPTION AND OR ADDRESS:

STONE CREEK BALANCE LTD
ABSTRACT. NO 131
8.684 AC (378,275 SF)

OWNER:
DuWEST REALTY, LLC
4403 N.CENTRAL EXWAY SUITE #200
DALLAS, TX 75025
CONTACT: BOWEN HENDRIX
PH: 214.918.1804

APPLICANT:
CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
PH: 817.281.0572

CASE NUMBER
Z2022-003

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING AND ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____.

WITNESS OUR HANDS THIS ____ DAY OF _____.

_____
PLANNING AND ZONING COMMISSION, CHAIRMAN

_____
DIRECTOR OF PLANNING AND ZONING

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
1903 CENTRAL DR, SUITE #406
BEDFORD, TX 76021
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM

REGISTERED LANDSCAPE ARCHITECT — DARCY R. BRANDON — 3423 — STATE OF TEXAS

10/13/2022

DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

EVERGREEN DESIGN GROUP
(800) 680-6630
15455 Dallas Pkwy., Ste 600
Addison, TX 75001
www.EvergreenDesignGroup.com

LANDSCAPE PLANTING DETAILS & NOTES

DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	10/13/2022

SHEET
LP-2

File No. 2022-002

CASE # SP2022-042

PLOTTED BY: DARCY BRANDON
PLOT DATE: 10/13/2022 3:12 PM
LOCATION: C:\USERS\DARCY\DOCUMENTS\DBLA_PROJECTS\2022\EDG\CHIPOLTE DUWEST - ROCKWALL, TX\XREFS\2022-10-10 DUWEST ROCKWALL PHASE 2.DWG
LAST SAVED: 10/13/2022 3:10 PM

PLANTING SPECIFICATIONS

GENERAL

A. QUALIFICATIONS OF LANDSCAPE CONTRACTOR
   1. ALL LANDSCAPE WORK SHOWN ON THESE PLANS SHALL BE PERFORMED BY A SINGLE FIRM SPECIALIZING IN LANDSCAPE PLANTING.
   2. A LIST OF SUCCESSFULLY COMPLETED PROJECTS OF THIS TYPE, SIZE AND NATURE MAY BE REQUESTED BY THE OWNER FOR FURTHER QUALIFICATION MEASURES.
   3. THE LANDSCAPE CONTRACTOR SHALL HOLD A VALID NURSERY AND FLORAL CERTIFICATE ISSUED BY THE TEXAS DEPARTMENT OF AGRICULTURE, AS WELL AS OPERATE UNDER A COMMERCIAL PESTICIDE APPLICATOR LICENSE ISSUED BY EITHER THE TEXAS DEPARTMENT OF AGRICULTURE OR THE TEXAS STRUCTURAL PEST CONTROL BOARD.

B. SCOPE OF WORK
   1. WORK COVERED BY THESE SECTIONS INCLUDES THE FURNISHING AND PAYMENT OF ALL MATERIALS, LABOR, SERVICES, EQUIPMENT, LICENSES, TAXES AND ANY OTHER ITEMS THAT ARE NECESSARY FOR THE EXECUTION, INSTALLATION AND COMPLETION OF ALL WORK, SPECIFIED HEREIN AND / OR SHOWN ON THE LANDSCAPE PLANS, NOTES, AND DETAILS.
   2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS REQUIRED BY AUTHORITIES HAVING JURISDICTION OVER SUCH WORK, INCLUDING ALL INSPECTIONS AND PERMITS REQUIRED BY FEDERAL, STATE AND LOCAL AUTHORITIES IN SUPPLY, TRANSPORTATION AND INSTALLATION OF MATERIALS.
   3. THE LANDSCAPE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITY LINES (WATER, SEWER, ELECTRICAL, TELEPHONE, GAS, CABLE, TELEVISION, ETC.) PRIOR TO THE START OF ANY WORK.

PRODUCTS

A. ALL MANUFACTURED PRODUCTS SHALL BE NEW.
B. CONTAINER AND BALLED-AND-BURLAPPED PLANTS:
   1. FURNISH NURSERY-GROWN PLANTS COMPLYING WITH ANSI Z60.1-2014. PROVIDE WELL-SHAPED, FULLY BRANCHED, HEALTHY, VIGOROUS STOCK FREE OF DISEASE, INSECTS, EGGS, LARVAE, AND DEFECTS SUCH AS KNOTS, SUN SCALD, INJURIES, ABRASIONS, AND DISFIGUREMENT. ALL PLANTS WITHIN A SPECIES SHALL HAVE SIMILAR SIZE, AND SHALL BE OF A FORM TYPICAL FOR THE SPECIES. ALL TREES SHALL BE OBTAINED FROM SOURCES WITHIN 200 MILES OF THE PROJECT SITE, AND WITH SIMILAR CLIMACTIC CONDITIONS.
   2. ROOT SYSTEMS SHALL BE HEALTHY, DENSELY BRANCHED ROOT SYSTEMS, NON-POT-BOUND, FREE FROM ENCIRCLING AND/OR GIRDLING ROOTS, AND FREE FROM ANY OTHER ROOT DEFECTS (SUCH AS J-SHAPED ROOTS).
   3. TREES MAY BE PLANTED FROM CONTAINERS OR BALLED-AND-BURLAPPED (B&B), UNLESS SPECIFIED ON THE PLANTING LEGEND. BARE-ROOT TREES ARE NOT ACCEPTABLE.
   4. ANY PLANT DEEMED UNACCEPTABLE BY THE LANDSCAPE ARCHITECT OR OWNER SHALL BE IMMEDIATELY REMOVED FROM THE SITE AND SHALL BE REPLACED WITH AN ACCEPTBLE PLANT OF LIKE TYPE AND SIZE AT THE CONTRACTOR'S OWN EXPENSE. ANY PLANTS APPEARING TO BE UNHEALTHY, EVEN IF DETERMINED TO STILL BE ALIVE, SHALL NOT BE ACCEPTED. THE LANDSCAPE ARCHITECT AND OWNER SHALL BE THE SOLE JUDGES AS TO THE ACCEPTABILITY OF PLANT MATERIAL.
   5. ALL TREES SHALL BE STANDARD IN FORM, UNLESS OTHERWISE SPECIFIED. TREES WITH CENTRAL LEADERS WILL NOT BE ACCEPTED IF LEADER IS DAMAGED OR REMOVED. PRUNE ALL DAMAGED TWIGS AFTER PLANTING.
   6. CALIPER MEASUREMENTS FOR STANDARD (SINGLE TRUNK) TREES SHALL BE AS FOLLOWS: SIX INCHES ABOVE THE ROOT FLARE FOR TREES UP TO AND INCLUDING FOUR INCHES IN CALIPER, AND TWELVE INCHES ABOVE THE ROOT FLARE FOR TREES EXCEEDING FOUR INCHES IN CALIPER.
   7. MULTI-TRUNK TREES SHALL BE MEASURED BY THEIR OVERALL HEIGHT, MEASURED FROM THE TOP OF THE ROOT BALL. WHERE CALIPER MEASUREMENTS ARE USED, THE CALIPER SHALL BE CALCULATED AS ONE-HALF OF THE SUM OF THE CALIPER OF THE THREE LARGEST TRUNKS.
   8. ANY TREE OR SHRUB SHOWN TO HAVE EXCESS SOIL PLACED ON TOP OF THE ROOT BALL, SO THAT THE ROOT FLARE HAS BEEN COMPLETELY COVERED, SHALL BE REJECTED.
C. SOD: PROVIDE WELL-ROOTED SOD OF THE VARIETY NOTED ON THE PLANS. SOD SHALL BE CUT FROM HEALTHY, MATURE TURF WITH SOIL THICKNESS OF 3/4" TO 1". EACH PALLET OF SOD SHALL BE ACCOMPANIED BY A CERTIFICATE FROM SUPPLIER STATING THE COMPOSITION OF THE SOD.
D. TOPSOIL: SANDY TO CLAY LOAM TOPSOIL, FREE OF STONES LARGER THAN ½ INCH, FOREIGN MATTER, PLANTS, ROOTS, AND SEEDS.
E. COMPOST: WELL-COMPOSTED, STABLE, AND WEED-FREE ORGANIC MATTER, pH RANGE OF 5.5 TO 8; MOISTURE CONTENT 35 TO 55 PERCENT BY WEIGHT; 100 PERCENT PASSING THROUGH 3/4-INCH SIEVE; SOLUBLE SALT CONTENT OF 5 TO 10 DECISIEMENS/M; NOT EXCEEDING 0.5 PERCENT INERT CONTAMINANTS AND FREE OF SUBSTANCES TOXIC TO PLANTINGS. NO MANURE OR ANIMAL-BASED PRODUCTS SHALL BE USED.
F. FERTILIZER: GRANULAR FERTILIZER CONSISTING OF NITROGEN, PHOSPHORUS, POTASSIUM, AND OTHER NUTRIENTS IN PROPORTIONS, AMOUNTS, AND RELEASE RATES RECOMMENDED IN A SOIL REPORT FROM A QUALIFIED SOIL-TESTING AGENCY (SEE BELOW).
G. MULCH: SIZE AND TYPE AS INDICATED ON PLANS, FREE FROM DELETERIOUS MATERIALS AND SUITABLE AS A TOP DRESSING OF TREES AND SHRUBS.
H. TREE STAKING AND GUYING
   1. STAKES: 6' LONG GREEN METAL T-POSTS.
   2. GUY AND TIE WIRE: ASTM A 641, CLASS 1, GALVANIZED-STEEL WIRE, 2-STRAND, TWISTED, 0.106 INCH DIAMETER.
   3. STRAP CHAFING GUARD: REINFORCED NYLON OR CANVAS AT LEAST 1-1/2 INCH WIDE, WITH GROMMETS TO PROTECT TREE TRUNKS FROM DAMAGE.
I. STEEL EDGING: PROFESSIONAL STEEL EDGING, 14 GAUGE THICK X 4 INCHES WIDE, FACTORY PAINTED DARK GREEN. ACCEPTABLE MANUFACTURERS INCLUDE COL-MET OR APPROVED EQUAL.
J. PRE-EMERGENT HERBICIDES: ANY GRANULAR, NON-STAINING PRE-EMERGENT HERBICIDE THAT IS LABELED FOR THE SPECIFIC ORNAMENTALS OR TURF ON WHICH IT WILL BE UTILIZED. PRE-EMERGENT HERBICIDES SHALL BE APPLIED PER THE MANUFACTURER'S LABELED RATES.

METHODS

A. SOIL PREPARATION
   1. BEFORE STARTING WORK, THE LANDSCAPE CONTRACTOR SHALL VERIFY THAT THE GRADE OF ALL LANDSCAPE AREAS ARE WITHIN +/-0.1" OF FINISH GRADE. THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY SHOULD ANY DISCREPANCIES EXIST.
   2. SOIL TESTING:
      a. AFTER FINISH GRADES HAVE BEEN ESTABLISHED, CONTRACTOR SHALL HAVE SOIL SAMPLES FROM THE PROJECT'S LANDSCAPE AREAS TESTED BY AN ESTABLISHED SOIL TESTING LABORATORY. EACH SAMPLE SUBMITTED TO THE LAB SHALL CONTAIN NO LESS THAN ONE QUART OF SOIL, TAKEN FROM BETWEEN THE SOIL SURFACE AND 6" DEPTH. IF NO SAMPLE LOCATIONS ARE INDICATED ON THE PLANS, THE CONTRACTOR SHALL TAKE A MINIMUM OF THREE SAMPLES FROM VARIOUS REPRESENTATIVE LOCATIONS FOR TESTING.
      b. THE CONTRACTOR SHALL HAVE THE SOIL TESTING LABORATORY PROVIDE RESULTS FOR THE FOLLOWING: SOIL TEXTURAL CLASS, GENERAL SOIL FERTILITY, pH, ORGANIC MATTER CONTENT, SALT (CEC), LIME, SODIUM ADSORPTION RATIO (SAR) AND BORON CONTENT.
      c. THE CONTRACTOR SHALL ALSO SUBMIT THE PROJECT'S PLANT LIST TO THE LABORATORY ALONG WITH THE SOIL SAMPLES.
      d. THE SOIL REPORT PRODUCED BY THE LABORATORY SHALL CONTAIN RECOMMENDATIONS FOR THE FOLLOWING (AS APPROPRIATE): SEPARATE SOIL PREPARATION AND BACKFILL MIX RECOMMENDATIONS FOR GENERAL ORNAMENTAL PLANTS, XERIC PLANTS, TURF, AND NATIVE SEED, AS WELL AS PRE-PLANT FERTILIZER APPLICATIONS AND RECOMMENDATIONS FOR ANY OTHER SOIL RELATED ISSUES. THE REPORT SHALL ALSO PROVIDE A FERTILIZER PROGRAM FOR THE ESTABLISHMENT PERIOD AND FOR LONG-TERM MAINTENANCE.
   3. THE CONTRACTOR SHALL INSTALL SOIL AMENDMENTS AND FERTILIZERS PER THE SOILS REPORT RECOMMENDATIONS. ANY CHANGE IN COST DUE TO THE SOIL REPORT RECOMMENDATIONS, EITHER INCREASE OR DECREASE, SHALL BE SUBMITTED TO THE OWNER WITH THE REPORT.
   4. FOR BIDDING PURPOSES ONLY, THE SOIL PREPARATION SHALL CONSIST OF THE FOLLOWING:
      a. TURF: INCORPORATE THE FOLLOWING AMENDMENTS INTO THE TOP 8" OF SOIL BY MEANS OF ROTOTILLING AFTER CROSS-RIPPING:
         i. NITROGEN STABILIZED ORGANIC AMENDMENT - 4 CU. YDS. PER 1,000 S.F.
         ii. PREPLANT TURF FERTILIZER (10-20-10 OR SIMILAR, SLOW RELEASE, ORGANIC) - 15 LBS PER 1,000 S.F.
         iii. "CLAY BUSTER" OR EQUAL - USE MANUFACTURER'S RECOMMENDED RATE
      b. TREES, SHRUBS, AND PERENNIALS: INCORPORATE THE FOLLOWING AMENDMENTS INTO THE TOP 8" OF SOIL BY MEANS OF ROTOTILLING AFTER CROSS-RIPPING:
         i. NITROGEN STABILIZED ORGANIC AMENDMENT - 4 CU. YDS. PER 1,000 S.F.
         ii. 12-12-12 FERTILIZER (OR SIMILAR, ORGANIC, SLOW RELEASE) - 10 LBS. PER CU. YD.
         iii. "CLAY BUSTER" OR EQUAL - USE MANUFACTURER'S RECOMMENDED RATE
         iv. IRON SULPHATE - 2 LBS. PER CU. YD.
   5. IN THE CONTEXT OF THESE PLANS, NOTES, AND SPECIFICATIONS, "FINISH GRADE" REFERS TO THE FINAL ELEVATION OF THE SOIL SURFACE (NOT TOP OF MULCH) AS INDICATED ON THE GRADING PLANS.
      a. BEFORE STARTING WORK, THE LANDSCAPE CONTRACTOR SHALL VERIFY THAT THE ROUGH GRADES OF ALL LANDSCAPE AREAS ARE WITHIN +/-0.1' OF FINISH GRADE. SEE SPECIFICATIONS FOR MORE DETAILED INSTRUCTION ON TURF AREA AND PLANTING BED PREPARATION.
      b. CONSTRUCT AND MAINTAIN FINISH GRADES AS SHOWN ON GRADING PLANS, AND CONSTRUCT AND MAINTAIN SLOPES AS RECOMMENDED BY THE GEOTECHNICAL REPORT. ALL LANDSCAPE AREAS SHALL HAVE POSITIVE DRAINAGE AWAY FROM STRUCTURES AT THE MINIMUM SLOPE SPECIFIED IN THE REPORT AND ON THE GRADING PLANS, AND AREAS OF POTENTIAL PONDING SHALL BE REGRADED TO BLEND IN WITH THE SURROUNDING GRADES AND ELIMINATE PONDING POTENTIAL.
      c. THE LANDSCAPE CONTRACTOR SHALL DETERMINE WHETHER OR NOT THE EXPORT OF ANY SOIL WILL BE NEEDED, TAKING INTO ACCOUNT THE ROUGH GRADE PROVIDED, THE AMOUNT OF SOIL AMENDMENTS TO BE ADDED (**BASED ON A SOIL TEST**, PER SPECIFICATIONS), AND THE FINISH GRADES TO BE ESTABLISHED.
      d. ENSURE THAT THE FINISH GRADE IN SHRUB AREAS IMMEDIATELY ADJACENT TO WALKS AND OTHER WALKING SURFACES, AFTER INSTALLING SOIL AMENDMENTS, IS 3" BELOW THE ADJACENT FINISH SURFACE, IN ORDER TO ALLOW FOR PROPER MULCH DEPTH. TAPER THE SOIL SURFACE TO MEET FINISH GRADE, AS SPECIFIED ON THE GRADING PLANS, AT APPROXIMATELY 18" AWAY FROM THE WALKS.
      e. ENSURE THAT THE FINISH GRADE IN TURF AREAS IMMEDIATELY ADJACENT TO WALKS AND OTHER WALKING SURFACES, AFTER INSTALLING SOIL AMENDMENTS, IS 1" BELOW THE FINISH SURFACE OF THE WALKS. TAPER THE SOIL SURFACE TO MEET FINISH GRADE, AS SPECIFIED ON THE GRADING PLANS, AT APPROXIMATELY 18" AWAY FROM THE WALKS.
      f. SHOULD ANY CONFLICTS AND/OR DISCREPANCIES ARISE BETWEEN THE GRADING PLANS, GEOTECHNICAL REPORT, THESE NOTES AND PLANS, AND ACTUAL CONDITIONS, THE CONTRACTOR SHALL IMMEDIATELY BRING SUCH ITEMS TO THE ATTENTION OF THE LANDSCAPE ARCHITECT, GENERAL CONTRACTOR, AND OWNER.
   6. ONCE SOIL PREPARATION IS COMPLETE, THE LANDSCAPE CONTRACTOR SHALL ENSURE THAT THERE ARE NO DEBRIS, TRASH, OR STONES LARGER THAN 1" REMAINING IN THE TOP 6" OF SOIL.

B. SUBMITTALS
   1. THE CONTRACTOR SHALL PROVIDE SUBMITTALS AND SAMPLES, IF REQUIRED, TO THE LANDSCAPE ARCHITECT, AND RECEIVE APPROVAL IN WRITING FOR SUCH SUBMITTALS BEFORE WORK COMMENCES.
   2. SUBMITTALS SHALL INCLUDE PHOTOS OF PLANTS WITH A RULER OR MEASURING STICK FOR SCALE, PHOTOS OR SAMPLES OF ANY REQUIRED MULCHES, AND SOIL TEST RESULTS AND PREPARATION RECOMMENDATIONS FROM THE TESTING LAB (INCLUDING COMPOST AND FERTILIZER RATES AND TYPES, AND OTHER AMENDMENTS FOR TREE/SHRUB, TURF, AND SEED AREAS AS MAY BE APPROPRIATE).
   3. SUBMITTALS SHALL ALSO INCLUDE MANUFACTURER CUT SHEETS FOR PLANTING ACCESSORIES SUCH AS TREE STAKES AND TIES, EDGING, AND LANDSCAPE FABRICS (IF ANY).
   4. WHERE MULTIPLE ITEMS ARE SHOWN ON A PAGE, THE CONTRACTOR SHALL CLEARLY INDICATE THE ITEM BEING CONSIDERED.
C. GENERAL PLANTING
   1. REMOVE ALL NURSERY TAGS AND STAKES FROM PLANTS.
   2. EXCEPT IN AREAS TO BE PLANTED WITH ORNAMENTAL GRASSES, APPLY PRE-EMERGENT HERBICIDES AT THE MANUFACTURER'S RECOMMENDED RATE.
   3. TRENCHING NEAR EXISTING TREES:
      a. CONTRACTOR SHALL NOT DISTURB ROOTS 1-1/2" AND LARGER IN DIAMETER WITHIN THE CRITICAL ROOT ZONE (CRZ) OF EXISTING TREES, AND SHALL EXERCISE ALL POSSIBLE CARE AND PRECAUTIONS TO AVOID INJURY TO TREE ROOTS, TRUNKS, AND BRANCHES. THE CRZ IS DEFINED AS A CIRCULAR AREA EXTENDING OUTWARD FROM THE TREE TRUNK, WITH A RADIUS EQUAL TO 1' FOR EVERY 1" OF TRUNK DIAMETER-AT-BREAST-HEIGHT (4.5' ABOVE THE AVERAGE GRADE AT THE TRUNK).
      b. ALL EXCAVATION WITHIN THE CRZ SHALL BE PERFORMED USING HAND TOOLS. NO MACHINE EXCAVATION OR TRENCHING OF ANY KIND SHALL BE ALLOWED WITHIN THE CRZ.
      c. ALTER ALIGNMENT OF PIPE TO AVOID TREE ROOTS 1-1/2" AND LARGER IN DIAMETER. WHERE TREE ROOTS 1-1/2" AND LARGER IN DIAMETER ARE ENCOUNTERED IN THE FIELD, TUNNEL UNDER SUCH ROOTS. WRAP EXPOSED ROOTS WITH SEVERAL LAYERS OF BURLAP AND KEEP MOIST. CLOSE ALL TRENCHES WITHIN THE CANOPY DRIP LINES WITHIN 24 HOURS.
      d. ALL SEVERED ROOTS SHALL BE HAND PRUNED WITH SHARP TOOLS AND ALLOWED TO AIR-DRY. DO NOT USE ANY SORT OF SEALERS OR WOUND PAINTS.
D. TREE PLANTING
   1. TREE PLANTING HOLES SHALL BE EXCAVATED TO MINIMUM WIDTH OF TWO TIMES THE WIDTH OF THE ROOTBALL, AND TO A DEPTH EQUAL TO THE DEPTH OF THE ROOTBALL LESS TWO TO FOUR INCHES.
   2. SCARIFY THE SIDES AND BOTTOM OF THE PLANTING HOLE PRIOR TO THE PLACEMENT OF THE TREE. REMOVE ANY GLAZING THAT MAY HAVE BEEN CAUSED DURING THE EXCAVATION OF THE HOLE.
   3. FOR CONTAINER AND BOX TREES, TO REMOVE ANY POTENTIALLY GIRDLING ROOTS AND OTHER ROOT DEFECTS, THE CONTRACTOR SHALL SHAVE A 1" LAYER OFF OF THE SIDES AND BOTTOM OF THE ROOTBALL OF ALL TREES JUST BEFORE PLACING INTO THE PLANTING PIT. DO NOT "TEASE" ROOTS OUT FROM THE ROOTBALL.
   4. INSTALL THE TREE ON UNDISTURBED SUBGRADE SO THAT THE TOP OF THE ROOTBALL IS TWO TO FOUR INCHES ABOVE THE SURROUNDING GRADE.
   5. BACKFILL THE TREE HOLE UTILIZING THE EXISTING TOPSOIL FROM ON-SITE. ROCKS LARGER THAN 1" DIA. AND ALL OTHER DEBRIS SHALL BE REMOVED FROM THE SOIL PRIOR TO THE BACKFILL. SHOULD ADDITIONAL SOIL BE REQUIRED TO ACCOMPLISH THIS TASK, USE STORED TOPSOIL FROM ON-SITE OR IMPORT ADDITIONAL TOPSOIL FROM OFF-SITE AT NO ADDITIONAL COST TO THE OWNER. IMPORTED TOPSOIL SHALL BE OF SIMILAR TEXTURAL CLASS AND COMPOSITION IN THE ON-SITE SOIL.
   6. TREES SHALL NOT BE STAKED UNLESS LOCAL CONDITIONS (SUCH AS HEAVY WINDS OR SLOPES) REQUIRE STAKES TO KEEP TREES UPRIGHT. SHOULD STAKING BE REQUIRED, THE TOTAL NUMBER OF TREE STAKES (BEYOND THE MINIMUMS LISTED BELOW) WILL BE LEFT TO THE LANDSCAPE CONTRACTOR'S DISCRETION. SHOULD ANY TREES FALL OR LEAN, THE LANDSCAPE CONTRACTOR SHALL STRAIGHTEN THE TREE, OR REPLACE IT SHOULD IT BECOME DAMAGED. TREE STAKING SHALL ADHERE TO THE FOLLOWING GUIDELINES:
      a. 1"-2" TREES — TWO STAKES PER TREE
      b. 2-1/2"-4" TREES — THREE STAKES PER TREE
      c. TREES OVER 4" CALIPER — GUY AS NEEDED
      d. MULTI-TRUNK TREES — THREE STAKES PER TREE MINIMUM, QUANTITY AND POSITIONS AS NEEDED TO STABILIZE THE TREE
      e. MULTI-TRUNK TREES — THREE STAKES PER TREE MINIMUM, QUANTITY AND POSITIONS AS NEEDED TO STABILIZE THE TREE
   7. UPON COMPLETION OF PLANTING, CONSTRUCT AN EARTH WATERING BASIN AROUND THE TREE. COVER THE INTERIOR OF THE TREE RING WITH THE WEED BARRIER CLOTH AND TOPDRESS WITH MULCH (TYPE AND DEPTH PER PLANS).
E. SHRUB, PERENNIAL, AND GROUNDCOVER PLANTING
   1. DIG THE PLANTING HOLES TWICE AS WIDE AND 2" LESS DEEP THAN EACH PLANT'S ROOTBALL. INSTALL THE PLANT IN THE HOLE. BACKFILL AROUND THE PLANT WITH SOIL AMENDED PER SOIL TEST RECOMMENDATIONS.
   2. INSTALL THE WEED BARRIER CLOTH, OVERLAPPING IT AT THE ENDS. UTILIZE STEEL STAPLES TO KEEP THE WEED BARRIER CLOTH IN PLACE.
   3. WHEN PLANTING IS COMPLETE, INSTALL MULCH (TYPE AND DEPTH PER PLANS) OVER ALL PLANTING BEDS, COVERING THE ENTIRE PLANTING AREA.
F. SODDING
   1. SOD VARIETY TO BE AS SPECIFIED ON THE LANDSCAPE PLAN.
   2. LAY SOD WITHIN 24 HOURS FROM THE TIME OF STRIPPING. DO NOT LAY IF THE GROUND IS FROZEN.
   3. LAY THE SOD TO FORM A SOLID MASS WITH TIGHTLY FITTED JOINTS. BUTT ENDS AND SIDES OF SOD STRIPS - DO NOT OVERLAP. STAGGER STRIPS TO OFFSET JOINTS IN ADJACENT COURSES.
   4. ROLL THE SOD TO ENSURE GOOD CONTACT OF THE SOD'S ROOT SYSTEM WITH THE SOIL UNDERNEATH.
   5. WATER THE SOD THOROUGHLY WITH A FINE SPRAY IMMEDIATELY AFTER PLANTING TO OBTAIN AT LEAST SIX INCHES OF PENETRATION INTO THE SOIL BELOW THE SOD.
G. MULCH
   1. INSTALL MULCH TOPDRESSING, TYPE AND DEPTH PER MULCH NOTE, IN ALL PLANTING AREAS AND TREE RINGS.
   2. DO NOT INSTALL MULCH WITHIN 6" OF TREE ROOT FLARE AND WITHIN 24" OF HABITABLE STRUCTURES, EXCEPT AS MAY BE NOTED ON THESE PLANS. MULCH COVER WITHIN 6" OF CONCRETE WALKS AND CURBS SHALL NOT PROTRUDE ABOVE THE FINISH SURFACE OF THE WALKS AND CURBS. MULCH COVER WITHIN 12" OF WALLS SHALL BE AT LEAST 3" LOWER THAN THE TOP OF WALL.
H. CLEAN UP
   1. DURING LANDSCAPE PREPARATION AND PLANTING, KEEP ALL PAVEMENT CLEAN AND ALL WORK AREAS IN A NEAT, ORDERLY CONDITION.
   2. DISPOSED LEGALLY OF ALL EXCAVATED MATERIALS OFF THE PROJECT SITE.
I. INSPECTION AND ACCEPTANCE
   1. UPON COMPLETION OF THE WORK, THE LANDSCAPE CONTRACTOR SHALL PROVIDE THE SITE CLEAN, FREE OF DEBRIS AND TRASH, AND SUITABLE FOR USE AS INTENDED. THE LANDSCAPE CONTRACTOR SHALL THEN REQUEST AN INSPECTION BY THE OWNER TO DETERMINE FINAL ACCEPTABILITY.
   2. WHEN THE INSPECTED PLANTING WORK DOES NOT COMPLY WITH THE CONTRACT DOCUMENTS, THE LANDSCAPE CONTRACTOR SHALL REPLACE AND/OR REPAIR THE REJECTED WORK TO THE OWNER'S SATISFACTION WITHIN 24 HOURS.
   3. THE LANDSCAPE MAINTENANCE PERIOD WILL NOT COMMENCE UNTIL THE LANDSCAPE WORK HAS BEEN RE-INSPECTED BY THE OWNER AND FOUND TO BE ACCEPTABLE. AT THAT TIME, A WRITTEN NOTICE OF FINAL ACCEPTANCE WILL BE ISSUED BY THE OWNER, AND THE MAINTENANCE AND GUARANTEE PERIODS WILL COMMENCE.
J. LANDSCAPE MAINTENANCE
   1. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL WORK SHOWN ON THESE PLANS FOR 90 DAYS BEYOND FINAL ACCEPTANCE OF ALL LANDSCAPE WORK BY THE OWNER. LANDSCAPE MAINTENANCE SHALL INCLUDE WEEKLY SITE VISITS FOR THE FOLLOWING ACTIONS (AS APPROPRIATE): PROPER PRUNING, RESTAKING OF TREES, RESETTING OF PLANTS THAT HAVE SETTLED, MOWING AND AERATION OF LAWNS, WEEDING, TREATING FOR INSECTS AND DISEASES,REPLACEMENT OF MULCH, REMOVAL OF LITTER, REPAIRS TO THE IRRIGATION SYSTEM DUE TO FAULTY PARTS AND/OR WORKMANSHIP, AND THE APPROPRIATE WATERING OF ALL PLANTINGS. THE LANDSCAPE CONTRACTOR SHALL MAINTAIN THE IRRIGATION SYSTEM IN PROPER WORKING ORDER, WITH SCHEDULING ADJUSTMENTS BY SEASON TO MAXIMIZE WATER CONSERVATION.
   2. SHOULD SEEDED AND/OR SODDED AREAS NOT BE COVERED BY AN AUTOMATIC IRRIGATION SYSTEM, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR WATERING THESE AREAS AND OBTAINING A FULL, HEALTHY STAND OF PLANTS AT NO ADDITIONAL COST TO THE OWNER.
   3. TO ACHIEVE FINAL ACCEPTANCE AT THE END OF THE MAINTENANCE PERIOD, ALL OF THE FOLLOWING CONDITIONS MUST OCCUR:
      a. THE LANDSCAPE SHALL SHOW ACTIVE, HEALTHY GROWTH (WITH EXCEPTIONS MADE FOR SEASONAL DORMANCY). ALL PLANTS NOT MEETING THIS CONDITION SHALL BE REJECTED AND REPLACED BY HEALTHY PLANT MATERIAL PRIOR TO FINAL ACCEPTANCE.
      b. ALL HARDSCAPE SHALL BE CLEANED PRIOR TO FINAL ACCEPTANCE.
      c. SODDED AREAS MUST BE ACTIVELY GROWING AND MUST REACH A MINIMUM HEIGHT OF 1 1/2 INCHES BEFORE FIRST MOWING. BARE AREAS LARGER THAN TWELVE SQUARE INCHES MUST BE RESODDED (AS APPROPRIATE) PRIOR TO FINAL ACCEPTANCE. ALL SODDED TURF SHALL BE NEATLY MOWED.
K. WARRANTY PERIOD, PLANT GUARANTEE AND REPLACEMENTS
   1. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL TREES, SHRUBS, PERENNIALS, SOD, AND IRRIGATION SYSTEMS FOR A PERIOD OF ONE YEAR FROM THE DATE OF THE OWNER'S FINAL ACCEPTANCE (90 DAYS FOR ANNUAL PLANTS). THE CONTRACTOR SHALL REPLACE, AT HIS OWN EXPENSE AND TO THE SATISFACTION OF THE OWNER, ANY PLANTS WHICH DIE IN THAT TIME, OR REPAIR ANY PORTIONS OF THE IRRIGATION SYSTEM WHICH OPERATE IMPROPERLY.
   2. AFTER THE INITIAL MAINTENANCE PERIOD AND DURING THE GUARANTEE PERIOD, THE LANDSCAPE CONTRACTOR SHALL ONLY BE RESPONSIBLE FOR REPLACEMENT OF PLANTS WHEN PLANT DEATH CANNOT BE ATTRIBUTED DIRECTLY TO OVERWATERING OR OTHER DAMAGE BY HUMAN ACTIONS.
L. PROVIDE A MINIMUM OF (2) COPIES OF RECORD DRAWINGS TO THE OWNER UPON COMPLETION OF WORK. A RECORD DRAWING IS A RECORD OF ALL CHANGES THAT OCCURRED IN THE FIELD AND THAT ARE DOCUMENTED THROUGH CHANGE ORDERS, ADDENDA, OR CONTRACTOR/CONSULTANT DRAWING MARKUPS.

DUWEST ROCKWALL, TX

LEGAL DESCRIPTION AND OR ADDRESS:

STONE CREEK BALANCE LTD
ABSTRACT. NO 131
8.684 AC (378,275 SF)

OWNER:
DuWEST REALTY, LLC
4403 N.CENTRAL EXWAY SUITE #200
DALLAS, TX 75025
CONTACT: BOWEN HENDRIX
PH: 214.918.1804

APPLICANT:
CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
PH: 817.281.0572

CASE NUMBER
Z2022-003

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING AND ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____.

WITNESS OUR HANDS THIS ____ DAY OF _____.

_____
PLANNING AND ZONING COMMISSION, CHAIRMAN

_____
DIRECTOR OF PLANNING AND ZONING

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
1903 CENTRAL DR, SUITE #406
BEDFORD, TX 76021
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM

REGISTERED LANDSCAPE ARCHITECT
DARCY R. BRANDON
3423
STATE OF TEXAS

10/13/2022

EVERGREEN DESIGN GROUP
(800) 680-6630
15455 Dallas Pkwy., Ste 600
Addison, TX 75001
www.EvergreenDesignGroup.com

DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

LANDSCAPE PLANTING SPECIFICATIONS

DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	10/13/2022

SHEET
LP-3

File No. 2022-002

CASE # SP2022-042

PLOTTED BY: DARCY BRANDON
PLOT DATE: 10/13/2022 3:12 PM
LOCATION: C:\USERS\DARCY\DOCUMENTS\DBLA_PROJECTS\2022\LDG\CHIPOLTE DUWEST - ROCKWALL, TX\XREFS\2022-10-10 DUWEST ROCKWALL PHASE 2.DWG
LAST SAVED: 10/13/2022 3:10 PM

NOTE: TREE PROTECTION FOR ANY PRESERVED OR RELOCATED TREES MUST BE PROVIDED PER DETAILS AND SPECIFICATIONS ON SHEET TD-2. THESE MUST BE UP PRIOR TO THE COMMENCEMENT OF ANY WORK AND MAINTAINED THROUGHOUT CONSTRUCTION.

NOTE: ALL TREE TRIMMING MUST BE APPROVED BY THE OWNER AND LOCAL JURISDICTION PRIOR TO COMMENCEMENT OF WORK. ALL TREE TRIMMING MUST BE DONE BY AN ISA CERTIFIED ARBORIST IN ACCORDANCE WITH LOCAL TREE PRESERVATION ORDINANCE.

N 14°18'55" W 490.04'

N 54°44'31" W 165.14'

STATE HIGHWAY 205
100' RIGHT-OF-WAY

96.09'

8.62 ACRES

CALLED 266.364 AC
STONE CREEK BALANC
VOL. 5010, PG. 2
D.R.R.C.T.

CULVERT
DM=469.8'

CONCRETE CULVERT

LIMIT OF WORK - PHASE 2
LIMIT OF WORK - PHASE 1
LIMIT OF WORK

SITE DATA TABLE

	PHASE 2 (CHIPOTLE)	PHASE 1 (EXISTING)	TOTAL
SITE AREA	8.684 AC / 378,275 SF	8.684 AC / 378,275 SF	8.684 AC / 378,275 SF
ZONING	PD-70 (Planned Development)	PD-70 (Planned Development) GR (General Retail Dist.)	PD-70
PROPOSED USE	DRIVE-THRU RESTAURANT	RETAIL/DRIVE-THRU RESTAURANT	RETAIL/DRIVE-THRU RESTAURANT
BUILDING SIZE	2,325 SF	BLDG. B - 10,000 SF BLDG. C - 10,000 SF	20,325 SF
PATIO AREA	332 SF	2,777 SF	3,109 SF
LOT COVERAGE	0.06%	5.2%	5.26%
FLOOR AREA RATIO	0.00:1	0.05:1	0.06:1
BUILDING HEIGHT	1-STORY	1-STORY	1-STORY
IMPERVIOUS AREA	29,064 SF (0.8%)	116,406 SF (30.8%)	145,138 SF (38.3%)
OPEN SPACE	8.62 AC (92%)	6.04 AC (69.2%)	5.4 AC (61.7%)

PARKING DATA TABLE

PARKING REQUIRED	
DRIVE-THRU RESTAURANT (2,325 SF) 1 SPACE / 100 SF	24 SPACES
STANDARD PARKING	33 SPACES
ADA PARKING	2 SPACES
PARKING PROVIDED	
TOTAL PARKING	33 SPACES
ADA PARKING	2 SPACES

TREE MITIGATION SUMMARY

TOTAL MITIGATION REQUIRED:	387"
MITIGATION PROVIDED BY PLANTING 4" CALIPER TREES (78) TO BE PLANTED ONSITE:	312"
MITIGATION PROVIDED BY PURCHASING PRESERVATION CREDITS (20% OF TOTAL): (77.4" x $200 = $15,480 PAYMENT INTO THE CITY'S TREE FUND)	77.4"
TOTAL MITIGATION PROVIDED:	389.4"

LEGEND

- TREE TAG NUMBER
- EXISTING TREES TO BE PROTECTED IN PLACE
- TREE PROTECTION FENCE
- TREE TAG NUMBER
- EXISTING TREES TO BE REMOVED

SEE SHEET TD-2 FOR EXISTING TREE SURVEY TABLES & TREE MITIGATION CALCULATION TABLE
SEE SHEET LP-1 FOR PROPOSED REPLACEMENT TREES FOR MITIGATION.

Scale 1" = 20'

DUWEST ROCKWALL, TX

LEGAL DESCRIPTION AND OR ADDRESS:
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CASE NUMBER
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I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING AND ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____.

WITNESS OUR HANDS THIS ____ DAY OF _____.

PLANNING AND ZONING COMMISSION, CHAIRMAN

DIRECTOR OF PLANNING AND ZONING

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM
1903 CENTRAL DR, SUITE #406
BEDFORD, TX 76021

REGISTERED LANDSCAPE ARCHITECT
DARCY R. BRANDON
3423
STATE OF TEXAS

10/13/2022

DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

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TREESCAPE PLAN

DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	10/13/2022

SHEET
TD-1

File No. 2022-002

CASE # SP2022-042

PLOTTED BY: DARCY BRANDON
PLOT DATE: 10/13/2022 3:13 PM
LOCATION: C:\USERS\DARCY\DOCUMENTS\DBLA_PROJECTS\2022\EDG\CHIPOLTE DUWEST - ROCKWALL, TX\XREFS\2022-10-10 DUWEST ROCKWALL PHASE 2.DWG
LAST SAVED: 10/13/2022 3:10 PM

EXISTING TREE SURVEY

TREE TAG	SPECIES	CALIPER		FEATURE TREE	FEATRUE TREE REMOVED (2:1)	MITIGATION	PRIMARY PROTECTED	PRIMARY PROTECTED REMOVED (1:1)	MITIGATION	SECONDARY PROTECTED	SECONDARY PROTECTED REMOVED (0.5:1)	MITIGATION	NON-PROTECTED	COMMENTS
5001	CEDAR	22								22				PRESERVE
5002	CEDAR	10											10	PRESERVE
5003	CEDAR	10											10	PRESERVE
5004	CEDAR	10											10	PRESERVE
5005	HACKBERRY	24								24				PRESERVE
5006	CEDAR	14								14				PRESERVE
5007	HACKBERRY	12								12				PRESERVE
5008	HACKBERRY	16								16				PRESERVE
5009	HACKBERRY	14								14				PRESERVE
5057	CEDAR	24								24				PRESERVE
5058	HACKBERRY	12								12				PRESERVE
5059	HACKBERRY	24								24				PRESERVE
5060	ELM	30		30										PRESERVE
5061	ELM	23					23							PRESERVE
5062	HACKBERRY	8											8	PRESERVE
5063	ELM	7					7							PRESERVE
5064	ELM	25		25										PRESERVE
5065	HACKBERRY	13								13				PRESERVE
5066	PECAN	50		50										PRESERVE
5067	PECAN	20					20							PRESERVE
5068	WILLOW	13											13	PRESERVE
5069	ELM	13					13							PRESERVE
5071	ELM	15					15							PRESERVE
5072	PECAN	39		39										PRESERVE
5073	PECAN	23					23							PRESERVE
5095	HACKBERRY	9											9	REMOVE
5096	ELM	6						6	6					REMOVE
5097	ELM	12						12	12					REMOVE
5098	HACKBERRY	11									11	5.5		REMOVE
5100	CEDAR	9											9	REMOVE
5153	CEDAR	6											6	REMOVE
5155	BOIS D'ARC	36			36	72								REMOVE
5156	CEDAR	10											10	REMOVE
5157	HACKBERRY	20									20	10		REMOVE
5158	BOIS D'ARC	8											8	REMOVE
5159	HACKBERRY	13									13	6.5		REMOVE
5170	CEDAR	10											10	PRESERVE
5171	BOIS D'ARC	40		40										PRESERVE
5172	CEDAR	12								12				PRESERVE
5173	CEDAR	7											7	PRESERVE
5174	BOIS D'ARC	31		31										PRESERVE
5175	CEDAR	8											8	REMOVE
5176	HACKBERRY	8											8	REMOVE
5177	CEDAR	6											6	REMOVE
5178	BOIS D'ARC	21											21	REMOVE
5179	HACKBERRY	8											8	REMOVE
5180	HACKBERRY	8											8	REMOVE
5181	CEDAR	10											10	REMOVE
5182	BOIS D'ARC	14											14	REMOVE
5183	CEDAR	6											6	REMOVE
5184	BOIS D'ARC	26			26	52								REMOVE
5185	HACKBERRY	10											10	REMOVE
5186	BOIS D'ARC	10											10	REMOVE
5187	HACKBERRY	9											9	REMOVE
5188	BOIS D'ARC	10											10	REMOVE
5189	BOIS D'ARC	14											14	REMOVE
5190	HACKBERRY	16									16	8		REMOVE
5191	ELM	10						10	10					REMOVE
5192	ELM	8						8	8					REMOVE
5193	ELM	6						6	6					REMOVE
5194	BOIS D'ARC	20											20	REMOVE
5195	BOIS D'ARC	11											11	REMOVE
5196	HERCULES CLUB	13						13	13					REMOVE
5197	BOIS D'ARC	33			33	66								REMOVE
5198	HACKBERRY	8											8	REMOVE
5199	HACKBERRY	6											6	REMOVE
5200	ELM	28			28	56								REMOVE
5201	CEDAR	12									12	6		REMOVE
5202	CEDAR	10											10	REMOVE
5203	ELM	25			25	50								REMOVE
5204	WILLOW	30		30										PRESERVE
5205	WILLOW	13											13	PRESERVE
5207	WILLOW	12											12	PRESERVE
5208	WILLOW	16											16	PRESERVE
TOTAL TREES ON SITE		1156		245			101			187			348	
TREES REMOVED					148			55			72			
MITIGATION REQUIRED		387				296			55			36		
20% INTO TREE FUND		77.4												
BALANCE MITIGATION		309.6												
4" TREES REQ. TO MEET MITIGATION		77.4												

TREE MITIGATION CALCULATION TABLE

DESCRIPTION	CALIPER INCHES	FEATURE TREES	FEATURE TREES REMOVED 2:1	PRIMARY PROTECTED TREES	PRIMARY PROTECTED REMOVED 1:1	SECONDARY PROTECTED TREES	SECONDARY PROTECTED REMOVED 0.5:1	NON-PROTECTED TREES
TOTAL TREES ON SITE	1,156	245		101		187		348
TOTAL PROTECTED TREES	3,194							
TREES REMOVED	838		148		55		72	
TOTAL MITIGATION REQUIRED	387		296		55		36	
20% INTO TREE FUND ($200 / INCH)	77.4							
4" TREES PLANTED FOR MITIGATION (78)	312							
TOTAL MITIGATION PROVIDED	389.4							

TEXAS REGISTRATION #14199

CLAYMOORE ENGINEERING

PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM
1903 CENTRAL DR, SUITE #406
BEDFORD, TX 76021

REGISTERED LANDSCAPE ARCHITECT
DARCY R. BRANDON
3423
STATE OF TEXAS

10/13/2022

DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

DUWEST ROCKWALL, TX

LEGAL DESCRIPTION AND OR ADDRESS:

STONE CREEK BALANCE LTD
ABSTRACT. NO 131
8.684 AC (378,275 SF)

OWNER:

DuWEST REALTY, LLC
4403 N.CENTRAL EXWAY SUITE #200
DALLAS, TX 75025
CONTACT: BOWEN HENDRIX
PH: 214.918.1804

APPLICANT:

CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
PH: 817.281.0572

CASE NUMBER

Z2022-003

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING AND ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____.

WITNESS OUR HANDS THIS ____ DAY OF _____.

_____
PLANNING AND ZONING COMMISSION, CHAIRMAN

_____
DIRECTOR OF PLANNING AND ZONING

EVERGREEN DESIGN GROUP
(800) 680-6630
15455 Dallas Pkwy., Ste 600
Addison, TX 75001
www.EvergreenDesignGroup.com

TREESCAPE INVENTORY & MITIGATION

DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	10/13/2022

SHEET

TD-2

File No. 2022-002

CASE # SP2022-042

PLOTTED BY: DARCY BRANDON
PLOT DATE: 10/13/2022 3:13 PM
LOCATION: C:\USERS\DARCY\DOCUMENTS\DBLA_PROJECTS\2022\EDG\CHIPOLTE DUWEST - ROCKWALL, TX\XREF'S\2022-10-10 DUWEST ROCKWALL PHASE 2.DWG
LAST SAVED: 10/13/2022 3:10 PM

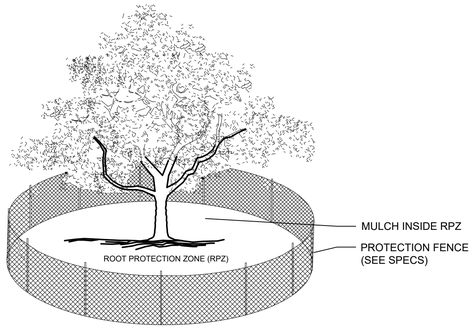
TREE PROTECTION SPECIFICATIONS

MATERIALS

1. FABRIC: 4 FOOT HIGH ORANGE PLASTIC FENCING AS SHOWN ON THE PLANS AND SHALL BE WOVEN WITH 2 INCH MESH OPENINGS SUCH THAT IN A VERTICAL DIMENSION OF 23 INCHES ALONG THE DIAGONALS OF THE OPENINGS THERE SHALL BE AT LEAST 7 MESHES.
2. POSTS: POSTS SHALL BE A MINIMUM OF 72 INCHES LONG AND STEEL 'T' SHAPED WITH A MINIMUM WEIGHT OF 1.3 POUNDS PER LINEAR FOOT.
3. TIE WIRE: WIRE FOR ATTACHING THE FABRIC TO THE T-POSTS SHALL BE NOT LESS THAN NO. 12 GAUGE GALVANIZED WIRE,
4. USED MATERIALS: PREVIOUSLY-USED MATERIALS, MEETING THE ABOVE REQUIREMENTS AND WHEN APPROVED BY THE OWNER, MAY BE USED.

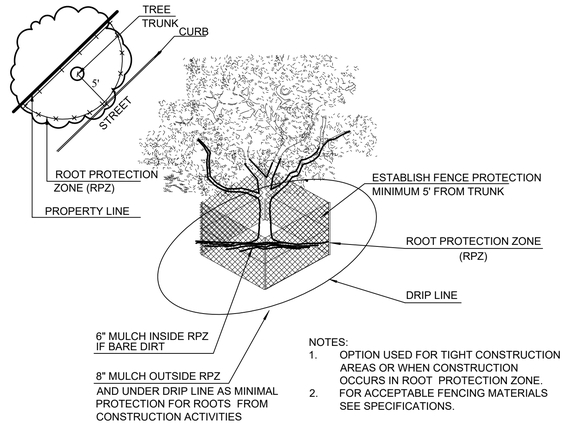
CONSTRUCTION METHODS

1. ALL TREES AND SHRUBS SHOWN TO REMAIN WITHIN THE PROXIMITY OF THE CONSTRUCTION SITE SHALL BE PROTECTED PRIOR TO BEGINNING ANY DEVELOPMENT ACTIVITY.
2. EMPLOY THE SERVICES OF AN ISA (INTERNATIONAL SOCIETY OF ARBORICULTURE) CERTIFIED ARBORIST AND OBTAIN ALL REQUIRED PERMITS TO PRUNE THE EXISTING TREES FOR CLEANING, RAISING AND THINNING, AS MAY BE REQUIRED.
3. PROTECTIVE FENCING SHALL BE ERECTED OUTSIDE THE CRITICAL ROOT ZONE (CRZ, EQUAL TO 1' FROM THE TRUNK FOR EVERY 1" OF DBH) AT LOCATIONS SHOWN IN THE PLANS OR AS DIRECTED BY THE LANDSCAPE CONSULTANT AND/OR CITY ARBORIST, AND IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS. FENCING SHALL BE MAINTAINED AND REPAIRED BY THE CONTRACTOR DURING SITE CONSTRUCTION. TREES IN CLOSE PROXIMITY SHALL BE FENCED TOGETHER, RATHER THAN INDIVIDUALLY.
4. PROTECTIVE FENCE LOCATIONS IN CLOSE PROXIMITY TO STREET INTERSECTIONS OR DRIVES SHALL ADHERE TO THE APPLICABLE JURISDICTION'S SIGHT DISTANCE CRITERIA.
5. THE PROTECTIVE FENCING SHALL BE ERECTED BEFORE SITE WORK COMMENCES AND SHALL REMAIN IN PLACE DURING THE ENTIRE CONSTRUCTION PHASE.
6. THE INSTALLATION POSTS SHALL BE PLACED EVERY 6 FEET ON CENTER AND EMBEDDED TO 18 INCHES DEEP. MESH FABRIC SHALL BE ATTACHED TO THE INSTALLATION POSTS BY THE USE OF SUFFICIENT WIRE TIES TO SECURELY FASTEN THE FABRIC TO THE T-POSTS TO HOLD THE FABRIC IN A STABLE AND UPRIGHT POSITION.
7. WITHIN THE CRZ:
   a. DO NOT CLEAR, FILL OR GRADE IN THE CRZ OF ANY TREE.
   b. DO NOT STORE, STOCKPILE OR DUMP ANY JOB MATERIAL, SOIL OR RUBBISH UNDER THE SPREAD OF THE TREE BRANCHES.
   c. DO NOT PARK OR STORE ANY EQUIPMENT OR SUPPLIES UNDER THE TREE CANOPY.
   d. DO NOT SET UP ANY CONSTRUCTION OPERATIONS UNDER THE TREE CANOPY (SUCH AS PIPE CUTTING AND THREADING, MORTAR MIXING, PAINTING OR LUMBER CUTTING).
   e. DO NOT NAIL OR ATTACH TEMPORARY SIGNS METERS, SWITCHES, WIRES, BRACING OR ANY OTHER ITEM TO THE TREES.
   f. DO NOT PERMIT RUNOFF FROM WASTE MATERIALS INCLUDING SOLVENTS, CONCRETE WASHOUTS, ASPHALT TACK COATS (MC-30 OIL), ETC. TO ENTER THE CRZ. BARRIERS ARE TO BE PROVIDED TO PREVENT SUCH RUNOFF SUBSTANCES FROM ENTERING THE CRZ WHENEVER POSSIBLE, INCLUDING IN AN AREA WHERE RAIN OR SURFACE WATER COULD CARRY SUCH MATERIALS TO THE ROOT SYSTEM OF THE TREE.
8. ROUTE UNDERGROUND UTILITIES TO AVOID THE CRZ. IF DIGGING IS UNAVOIDABLE, BORE UNDER THE ROOTS, OR HAND DIG TO AVOID SEVERING THEM.
9. WHERE EXCAVATION IN THE VICINITY OF TREES MUST OCCUR, SUCH AS FOR IRRIGATION INSTALLATION, PROCEED WITH CAUTION, AND USING HAND TOOLS ONLY.
10. THE CONTRACTOR SHALL NOT CUT ROOTS LARGER THAN ONE INCH IN DIAMETER WHEN EXCAVATION OCCURS NEAR EXISTING TREES. ALL ROOTS LARGER THAN ONE INCH IN DIAMETER ARE TO BE CUT CLEANLY. FOR OAKS ONLY, ALL WOUNDS SHALL BE PAINTED WITH WOUND SEALER WITHIN 30 MINUTES
11. REMOVE ALL TREES, SHRUBS OR BUSHES TO BE CLEARED FROM PROTECTED ROOT ZONE AREAS BY HAND.
12. TREES DAMAGED OR KILLED DUE TO CONTRACTOR'S NEGLIGENCE DURING CONSTRUCTION SHALL BE MITIGATED AT THE CONTRACTOR'S EXPENSE AND TO THE PROJECT OWNER'S AND LOCAL JURISDICTION'S SATISFACTION.
13. ANY TREE REMOVAL SHALL BE APPROVED BY THE OWNER AND LOCAL JURISDICTION PRIOR TO ITS REMOVAL, AND THE CONTRACTOR SHALL HAVE ALL REQUIRED PERMITS FOR SUCH ACTIVITIES.
14. COVER EXPOSED ROOTS AT THE END OF EACH DAY WITH SOIL, MULCH OR WET BURLAP.
15. IN CRITICAL ROOT ZONE AREAS THAT CANNOT BE PROTECTED DUING CONSTRUCTION AND WHERE HEAVY TRAFFIC IS ANTICIPATED, COVER THE SOIL WITH EIGHT INCHES OF ORGANIC MULCH TO MINIMIZE SOIL COMPACTION. THIS EIGHT INCH DEPTH OF MULCH SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
16. WATER ALL TREES IMPACTED BY CONSTRUCTION ACTIVITIES, DEEPLY ONCE A WEEK DURING PERIODS OF HOT DRY WEATHER. SPRAY TREE CROWNS WITH WATER PERIODICALLY TO REDUCE DUST ACCUMULATION ON THE LEAVES.
17. WHEN INSTALLING CONCRETE ADJACENT TO THE ROOT ZONE OF A TREE, USE A PLASTIC VAPOR BARRIER BEHIND THE CONCRETE TO PROHIBIT LEACHING OF LIME INTO THE SOIL.
18. CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL TREE PROTECTION FENCING WHEN ALL THREATS TO THE EXISTING TREES FROM CONSTRUCTION-RELATED ACTIVITIES HAVE BEEN REMOVED.



NOTES:
1. THE FENCING LOCATION SHOWN ABOVE IS DIAGRAMATIC ONLY AND WILL CONFORM TO THE DRIP LINE AND BE LIMITED TO PROJECT BOUNDARY. WHERE MULTIPLE ADJACENT TREES WILL BE ENCLOSED BY FENCING, THE FENCING SHALL BE CONTINUOUS AROUND ALL TREES.
2. FOR ACCEPTABLE FENCING MATERIALS SEE SPECIFICATIONS.

A TREE PROTECTION FENCE
SCALE: NOT TO SCALE

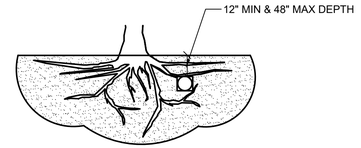


NOTES:
1. OPTION USED FOR TIGHT CONSTRUCTION AREAS OR WHEN CONSTRUCTION OCCURS IN ROOT PROTECTION ZONE.
2. FOR ACCEPTABLE FENCING MATERIALS SEE SPECIFICATIONS.

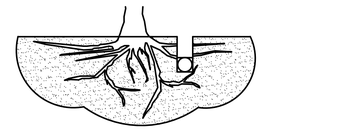
B TREE PROTECTION FENCE - TIGHT CONSTRUCTION
SCALE: NOT TO SCALE

TREES THAT ARE MARKED TO BE PRESERVED ON A SITE PLAN AND FOR WHICH UTILITIES MUST PASS TROUGH THEIR ROOT PROTECTION ZONES MAY REQUIRE TUNNELING AS OPPOSED TO OPEN TRENCHES. THE DECISION TO TUNNEL WILL BE DETERMINED ON A CASE BY CASE BASIS BY THE ENGINEER.

TUNNELS SHALL BE DUG THROUGH THE ROOT PROTECTION ZONE IN ORDER TO MINIMIZE ROOT DAMAGE.



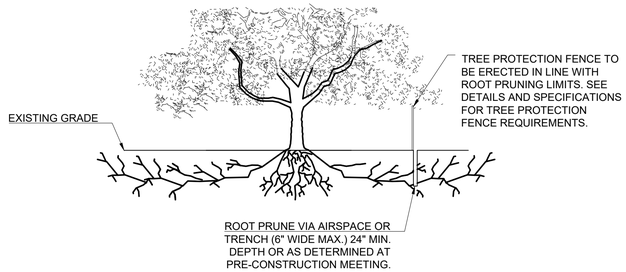
TUNNEL TO MINIMIZE ROOT DAMAGE (TOP) AS OPPOSED TO SURFACE-DUG TRENCHES IN ROOT PROTECTION ZONE WHEN THE 5' MINIMUM DISTANCE FROM TRUNK CAN NOT BE ACHIEVED.



OPEN TRENCHING MAY BE USED IF EXPOSED TREE ROOTS DO NOT EXCEED 3" OR ROOTS CAN BE BENT BACK.

C BORING THROUGH ROOT PROTECTION ZONE
SCALE: NOT TO SCALE

NOTES
1. RETENTION AREAS WILL BE SET AS PART OF THE REVIEW PROCESS AND PRE-CONSTRUCTION MEETING.
2. BOUNDARIES OF RETENTION AREAS MUST BE STAKED AT THE PRE-CONSTRUCTION MEETING AND FLAGGED PRIOR TO ROOT PRUNING.
3. EXACT LOCATION OF ROOT PRUNING SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE FORESTRY INSPECTOR .
4. TRENCH SHOULD BE IMMEDIATELY BACKFILLED WITH EXCAVATED SOIL OR OTHER ORGANIC SOIL AS SPECIFIED PER PLAN OR BY THE FORESTRY INSPECTOR.
5. ROOTS SHALL BE CLEANLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE EQUIPMENT. ROT PRUNING METHODS AND MEANS MUST BE IN ACCORDANCE WITH ANSI STANDARD A3000.
6. ALL PRUNING MUST BE EXECUTED AT LOD SHOWN ON PLANS OR AS AUTHORIZED IN WRITING BY THE FORESTRY INSPECTOR .
7. SUPPLEMENTAL WATERING MAY BE REQUIRED FOR ROOT PRUNED TREES THROUGHOUT THE GROWING SEASON DURING CONSTRUCTION AND SUBSEQUENT WARRANTY AND MAINTENANCE PERIOD.



D ROOT PRUNING DETAIL
SCALE: NOT TO SCALE

TREE PROTECTION GENERAL NOTES

(A) PRIOR TO THE LAND CLEARING STAGE OF DEVELOPMENT, THE CONTRACTOR SHALL CLEARLY MARK ALL PROTECTED TREES FOR WHICH A TREE REMOVAL PERMIT HAS NOT BEEN ISSUED AND SHALL ERECT BARRIERS FOR THE PROTECTION OF THE TREES ACCORDING TO THE FOLLOWING:
(1) AROUND AN AREA AT OR GREATER THAN A SIX-FOOT RADIUS OF ALL SPECIES OF MANGROVES AND PROTECTED CABBAGE PALMS;
(2) AROUND AN AREA AT OR GREATER THAN THE FULL DRIPLINE OF ALL PROTECTED NATIVE PINES;
(3) AROUND AN AREA AT OR GREATER THAN TWO-THIRDS OF THE DRIPLINE OF ALL OTHER PROTECTED SPECIES.

(B) NO PERSON SHALL ATTACH ANY SIGN, NOTICE OR OTHER OBJECT TO ANY PROTECTED TREE OR FASTEN ANY WIRES, CABLES, NAILS OR SCREWS TO ANY PROTECTED TREE IN ANY MANNER THAT COULD PROVE HARMFUL TO THE PROTECTED TREE, EXCEPT AS NECESSARY IN CONJUNCTION WITH ACTIVITIES IN THE PUBLIC INTEREST.

(C) DURING THE CONSTRUCTION STAGE OF DEVELOPMENT, THE CONTRACTOR SHALL NOT CAUSE OR PERMIT THE CLEANING OF EQUIPMENT OR MATERIAL WITHIN THE OUTSIDE PERIMETER OF THE CROWN (DRIPLINE) OR ON THE NEARBY GROUND OF ANY TREE OR GROUP OF TREES WHICH IS TO BE PRESERVED. WITHIN THE OUTSIDE PERIMETER OF THE CROWN (DRIPLINE) OF ANY TREE OR ON NEARBY GROUND, THE CONTRACTOR SHALL NOT CAUSE OR PERMIT STORAGE OF BUILDING MATERIAL AND/OR EQUIPMENT, OR DISPOSAL OF WASTE MATERIAL SUCH AS PAINTS, OIL, SOLVENTS, ASPHALT, CONCRETE, MORTAR OR ANY OTHER MATERIAL HARMFUL TO THE LIFE OF THE TREE.

(D) NO PERSON SHALL PERMIT ANY UNNECESSARY FIRE OR BURNING WITHIN 30 FEET OF THE DRIPLINE OF A PROTECTED TREE.

(E) ANY LANDSCAPING ACTIVITIES WITHIN THE BARRIER AREA SHALL BE ACCOMPLISHED WITH HAND LABOR.

(F) PRIOR TO ISSUING A CERTIFICATE OF OCCUPANCY OR COMPLIANCE FOR ANY DEVELOPMENT, BUILDING OR STRUCTURE, ALL TREES DESIGNATED TO BE PRESERVED THAT WERE DESTROYED DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR WITH TREES OF EQUIVALENT DIAMETER AT BREAST HEIGHT TREE CALIPER AND OF THE SAME SPECIES AS SPECIFIED BY THE CITY ADMINISTRATOR, BEFORE OCCUPANCY OR USE, UNLESS APPROVAL FOR THEIR REMOVAL HAS BEEN GRANTED UNDER PERMIT.

(G) THE CITY ADMINISTRATOR MAY CONDUCT PERIODIC INSPECTIONS OF THE SITE DURING LAND CLEARANCE AND CONSTRUCTION.

(H) IF, IN THE OPINION OF THE CITY ADMINISTRATOR, DEVELOPMENT ACTIVITIES WILL SO SEVERELY STRESS SLASH PINES OR ANY OTHER PROTECTED TREE SUCH THAT THEY ARE MADE SUSCEPTIBLE TO INSECT ATTACK, PREVENTATIVE SPRAYING OF THESE TREES BY THE CONTRACTOR MAY BE REQUIRED.

DUWEST ROCKWALL, TX

LEGAL DESCRIPTION AND OR ADDRESS:

STONE CREEK BALANCE LTD
ABSTRACT. NO 131
8.684 AC (378,275 SF)

OWNER:
DuWEST REALTY, LLC
4403 N.CENTRAL EXWAY SUITE #200
DALLAS, TX 75025
CONTACT: BOWEN HENDRIX
PH: 214.918.1804

APPLICANT:
CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
CONTACT: DREW DONOSKY
PH: 817.281.0572

CASE NUMBER
Z2022-003

I HEREBY CERTIFY THAT THE ABOVE AND FOREGOING SITE PLAN FOR A DEVELOPMENT IN THE CITY OF ROCKWALL, TEXAS, WAS APPROVED BY THE PLANNING AND ZONING COMMISSION OF THE CITY OF ROCKWALL ON THE _____ DAY OF _____.

WITNESS OUR HANDS THIS ____ DAY OF _____.

_____
PLANNING AND ZONING COMMISSION, CHAIRMAN

_____
DIRECTOR OF PLANNING AND ZONING

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM
1903 CENTRAL DR, SUITE #406
BEDFORD, TX 76021

REGISTERED LANDSCAPE ARCHITECT
DARCY R. BRANDON
3423
STATE OF TEXAS

10/13/2022

DUWEST ROCKWALL
SH 205 & QUAIL RUN RD
ROCKWALL, TX

EVERGREEN DESIGN GROUP
(800) 680-6630
15455 Dallas Pkwy., Ste 600
Addison, TX 75001
www.EvergreenDesignGroup.com

TREESCAPE DETAILS & SPECIFICATIONS

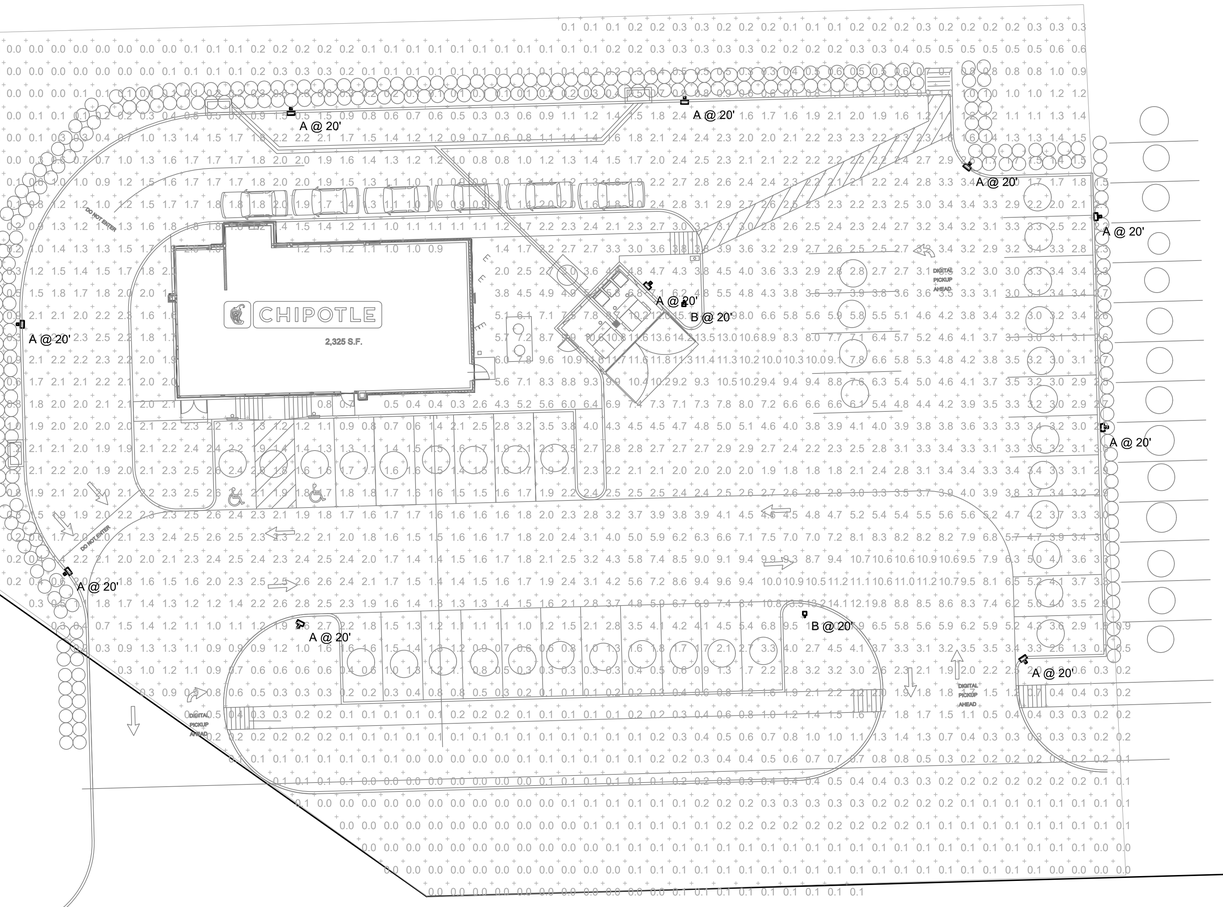
DESIGN:	LRR
DRAWN:	LRR
CHECKED:	CLC
DATE:	10/13/2022

SHEET
TD-3

File No. 2022-002

CASE # SP2022-042

PLOTTED BY: DARCY BRANDON
PLOT DATE: 10/13/2022 3:13 PM
LOCATION: C:\USERS\DARCY\DOCUMENTS\DBLA_PROJECTS\2022\EDG\CHIPOLTE DUWEST - ROCKWALL, TX\XREF'S\2022-10-10 DUWEST ROCKWALL PHASE 2.DWG
LAST SAVED: 10/13/2022 3:10 PM



Plan View
Scale - 1" = 20ft

Schedule

Symbol	Label	Image	QTY	Manufacturer	Catalog	Description	Number Lamps	Lamp Output	LLF	Input Power	Polar Plot
	A		10	Beacon Products	VP-1-36L-39-4K7-4F	VIPER	1	5465	1	39.6	Max: 6136cd
	B		2	BEACON PRODUCTS	VP-2-320L-185-4K7-2		1	26667	1	185.7	Max: 28295cd

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Site	+	2.0 fc	15.1 fc	0.0 fc	N/A	N/A

ARCHITECT OF RECORD

ROGUE ARCHITECTS

513 MAIN STREET, SUITE 300
FORT WORTH, TEXAS 76102
(817) 820-0433

STATE OF TEXAS
DARRELL ROY CASE
82433
REGISTERED
PROFESSIONAL ENGINEER
01/03/2022

DUWEST
CREATING, ENHANCING & PROTECTING VALUE

ROCKWALL NORTH SHELL
SH205 & QUAIL RUN ROAD
ROCKWALL, TX

Issue Record:

Revisions:

Drawn: JJV
Checked: BW

Project No.
ROGUE #22-0547

Contents:
SITE PHOTOMETRIC

E002

CASE Engineering Inc.

796 Merus Court
St. Louis, MO 63026
T 636.349.1600
F 636.349.1730
CERTIFICATE OF AUTHORITY NO. F-20080

BEACON
design . performance . technology

DATE: | LOCATION:

TYPE: | PROJECT:

CATALOG #:

VIPER Area/Site

VIPER LUMINAIRE

MICRO STRIKE | OPTICS STRIKE

FEATURES

- Low profile LED area/site luminaire with a variety of IES distributions for lighting applications such as auto dealership, retail, commercial, and campus parking lots
- Featuring two different optical technologies, Strike and Micro Strike Optics, which provide the best distribution patterns for retrofit or new construction
- Rated for high vibration applications including bridges and overpasses. All sizes are rated for 1.5G
- Control options including photo control, occupancy sensing, NX Lighting Controls™, wiSCAPE and 7-Pin with networked controls
- New customizable lumen output feature allows for the wattage and lumen output to be customized in the factory to meet whatever specification requirements may entail
- Field interchangeable mounting provides additional flexibility after the fixture has shipped

c UL us IP65 | BUY AMERICAN SOLUTIONS (See Certification Specifications) | DLC LISTED | DLC LISTED PREMIUM

CONTROL TECHNOLOGY

NX LIGHTING CONTROLS | wiSCAPE™

SPECIFICATIONS

CONSTRUCTION

- Die-cast housing with hidden vertical heat fins are optimal for heat dissipation while keeping a clean smooth outer surface
- Corrosion resistant, die-cast aluminum housing with 1000 hour powder coat paint finish
- External hardware is corrosion resistant

OPTICS

- Micro Strike Optics (160, 320, 480, or 720 LED counts) maximize uniformity in applications and come standard with mid-power LEDs which evenly illuminate the entire luminous surface area to provide a low glare appearance. Catalog logic found on page 2
- Strike Optics (36, 72, 108, or 162 LED counts) provide best in class distributions and maximum pole spacing in new applications with high powered LEDs. Strike optics are held in place with a polycarbonate bezel to mimic the appearance of the Micro Strike Optics so both solutions can be combined on the same application. Catalog logic found on page 3
- Both optics maximize target zone illumination with minimal losses at the house-side, reducing light trespass issues. Additional backlight control shields and house side shields can be added for further reduction of illumination behind the pole
- One-piece silicone gasket ensures a weatherproof seal
- Zero up-light at 0 degrees of tilt
- Field rotatable optics

INSTALLATION

- Mounting patterns for each arm can be found on page 11
- Optional universal mounting block for ease of installation during retrofit applications. Available as an option (ASQU) or accessory for square and round poles
- All mounting hardware included

INSTALLATION (CONTINUED)

- Knuckle arm fitter option available for 2-3/8" OD tenon
- For products with EPA less than 1 mounted to a pole greater that 20ft, a vibration damper is recommended

ELECTRICAL

- Universal 120-277 VAC or 347-480 VAC input voltage, 50/60 Hz
- Ambient operating temperature -40˚C to 40˚C
- Drivers have greater than 90% power factor and less than 20% THD
- LED drivers have output power over-voltage, over-current protection and short circuit protection with auto recovery
- Field replaceable surge protection device provides 20kA protection meeting ANSI/IEEE C62.41.2 Category C High and Surge Location Category C3; Automatically takes fixture off-line for protection when device is compromised
- Dual Driver option provides 2 drivers within luminaire but only one set of leads exiting the luminaire, where Dual Power Feed provides two drivers which can be wired independently as two sets of leads are extended from the luminaire. Both options cannot be combined

CONTROLS

- Photo control, occupancy sensor programmable controls, and Zigbee wireless controls available for complete on/off and dimming control
- Please consult brand or sales representative when combining control and electrical options as some combinations may not operate as anticipated depending on your application
- 7-pin ANSI C136.41-2013 photocontrol receptacle option available for twist lock photocontrols or wireless control modules (control accessories sold separately)

CONTROLS (CONTINUED)

- 0- 10V Dimming Drivers are standard and dimming leads are extended out of the luminaire unless control options require connection to the dimming leads. Must specify if wiring leads are to be greater than the 6" standard
- NX Lighting Controls™ available with in fixture wireless control module, features dimming and occupancy sensor
- wiSCAPE® available with in fixture wireless control module, features dimming and occupancy sensor. Also available in 7-pin configuration

CERTIFICATIONS

- DLC® (DesignLights Consortium Qualified), with both Premium and Standard Qualified configurations. Please refer to the DLC website for specific product qualifications at http://www.designlights.org
- Listed to UL1598 and CSA C22.2#250.0-24 for wet locations and 40˚C ambient temperatures
- 1.5 G rated for ANSI C136.31 high vibration applications
- Fixture is IP65 rated
- Meets IDA recommendations using 3K CCT configuration at 0 degrees of tilt
- This product qualifies as a "designated country construction material" per FAR 52.225-11 Buy American-Construction Materials under Trade Agreements effective 04/23/2020.

WARRANTY

- 5 year warranty

KEY DATA	
Lumen Range	5,000–80,000
Wattage Range	36–600
Efficacy Range (LPW)	92–155
Weight lbs. (kg)	13.7-30.9 (6.2-13.9)

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BEACON
design . performance . technology

DATE: | LOCATION:

TYPE: | PROJECT:

CATALOG #:

VIPER Area/Site

VIPER LUMINAIRE

MICROSTRIKE OPTICS – ORDERING GUIDE

Example: VP–2–320L-145–3K7–2–R–UNV–A3–BLT

CATALOG #

VP – | Series | Optic Platform | Size | Light Engine | CCT/CRI | Distribution | Optic Rotation | Voltage

Series	Optic Platform
VP Viper	Micro Strike

Size	Light Engine	
1 Size 1	160L-35 [6]	5500 lumens
	160L-50 [6]	7500 lumens
	160L-75	10000 lumens
	160L-100	12500 lumens
	160L-115	15000 lumens
	160L-135	18000 lumens
	160L-160	21000 lumens
2 Size 2	320L-145	21000 lumens
	320L-170	24000 lumens
	320L-185	27000 lumens
	320L-210	30000 lumens
	320L-235	33000 lumens
	320L-255	36000 lumens
	320L-315 [6]	40000 lumens
3 Size 3	480L-285	40000 lumens
	480L-320	44000 lumens
	480L-340	48000 lumens
	480L-390	52000 lumens
	480L-425	55000 lumens
	480L-470	60000 lumens
4 Size 4	720L-435	60000 lumens
	720L-475	65000 lumens
	720L-515	70000 lumens
	720L-565 [6]	75000 lumens
	720L-600 [6]	80000 lumens
	CLO	Custom Lumen Output [1]

CCT/CRI	
AP	AP-Amber Phosphor Converted
27K8	2700K, 80 CRI
3K7	3000K, 70 CRI
3K8	3000K, 80 CRI
35K8	3500K, 80 CRI
3K9	3000K, 90 CRI
4K7	4000K, 70 CRI
4K8	4000K, 80 CRI
4K9	4000K, 90 CRI
5K7	5000K, 70 CRI
5K8	5000K, 80 CRI

Distribution	
2	Type 2
3	Type 3
4F	Type 4 Forward
4W	Type 4 Wide
5QW	Type 5 Square Wide

Optic Rotation	
BLANK	No Rotation
L	Optic rotation left
R	Optic rotation right

Voltage	
UNV	120-277V
120	120V
208	208V
240	240V
277	277V
347	347V
480	480V

– | Mounting | Color | Options | – | Network Control Options

Mounting	
A	Arm mount for square pole/flat surface (B3 Drill Pattern) (Does not include round pole adapter)
A_	Arm mount for round pole [2]
ASQU	Universal arm mount for square pole. Can be used with B3 or S2 Drill Pattern
A_U	Universal arm mount for round pole [2]
AAU	Adjustable arm for pole mounting (universal drill pattern)
AA_U	Adjustable arm mount for round pole [2]
ADU	Decorative upswept Arm (universal drill pattern)
AD_U	Decorative upswept arm mount for round pole [2]
MAF	Mast arm fitter for 2-3/8" OD horizontal arm
K	Knuckle
T	Trunnion
WB	Wall Bracket, horizontal tenon with MAF
WM	Wall mount bracket with decorative upswept arm
WA	Wall mount bracket with adjustable arm

Color	
BLT	Black Matte Textured
BLS	Black Gloss Smooth
DBT	Dark Bronze Matte Textured
DBS	Dark Bronze Gloss Smooth
GTT	Graphite Matte Textured
LGS	Light Grey Gloss Smooth
LGT	Light Grey Gloss Textured
PSS	Platinum Silver Smooth
WHT	White Matte Textured
WHS	White Gloss Smooth
VGT	Verde Green Textured
Color Option	
CC	Custom Color

Options	
F	Fusing
2PF	Dual Power Feed
2DR	Dual Driver
TE	Tooless Entry
BC	Backlight Control [8]
TB	Terminal Block

Network Control Options	
NXWS16F	NX Networked Wireless Enabled Integral NXSMP2-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming [1,3,4]
NXWS40F	NX Networked Wireless Enabled Integral NXSMP2-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming [1,3,4]
NXW	NX Networked Wireless Radio Module NXRM2 and Bluetooth Programming, without Sensor [3,4]
WIR	wiSCAPE® In-Fixture Module [3,4]
WIRSC	wiSCAPE® Module and Occupancy Sensor [3,4]
Stand Alone Sensors	
BTS-14F	Bluetooth® Programmable, BTSMP-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens
BTS-40F	Bluetooth® Programmable, BTSMP-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens
BTSO-12F	Bluetooth® Programmable, BTSMP-OMNI-O PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens
7PR	7-Pin Receptacle [4]
7PR-SC	7-Pin Receptacle with shorting cap [4]
3PR	3-Pin twist lock [4]
3PR-SC	3-Pin receptacle with shorting cap [4]
3PR-TL	3-Pin PCR with photocontrol [4]
Programmed Controls	
ADD	AutoDim Timer Based Dimming [4]
ADT	AutoDim Time of Day Dimming [4]
Photocontrols	
PC	Button Photocontrol [4,7]

1 – Items with a grey background can be done as a custom order. Contact brand representative for more information
2 – Replace "_" with "2" for 2.5"-3.4" OD pole, "3" for 3.5"-4.13" OD pole, "4" for 4.18"-5.25" OD pole, "5" for 5.5"-6.5" OD pole
3 – Networked Controls cannot be combined with other control options
4 – Not available with 2PF option
5 – Not available with Dual Driver option
6 – Some voltage restrictions may apply when combined with controls
7 – Not available with 480V
8 – BC not available on 4F and type 5 distributions

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DATE: | LOCATION:

TYPE: | PROJECT:

CATALOG #:

VIPER Area/Site

VIPER LUMINAIRE

STRIKE OPTIC – ORDERING GUIDE

Example: VP–ST–1–36L-39–3K7–2–UNV–A–BLT

CATALOG #

VP –

Series	
VP	Viper

– | Optic Platform | |
|---|---|
| ST | Strike |

– | Size | |
|---|---|
| 1 | Size 1 |
| 2 | Size 2 |
| 3 | Size 3 |
| 4 | Size 4 |

– | Light Engine | |
|---|---|
| 36L-39 [8] | 5500 lumens |
| 36L-55 [8] | 7500 lumens |
| 36L-85 | 10000 lumens |
| 36L-105 | 12500 lumens |
| 36L-120 | 14000 lumens |
| 72L-115 | 15000 lumens |
| 72L-145 | 18000 lumens |
| 72L-180 | 21000 lumens |
| 72L-210 | 24000 lumens |
| 72L-240 | 27000 lumens |
| 108L-215 [8] | 27000 lumens |
| 108L-250 | 30000 lumens |
| 108L-280 | 33000 lumens |
| 108L-325 | 36000 lumens |
| 108L-365 | 40000 lumens |
| 162L-320 | 40000 lumens |
| 162L-365 [10] | 44000 lumens |
| 162L-405 | 48000 lumens |
| 162L-445 | 52000 lumens |
| 162L-485 | 55000 lumens |
| 162L-545 [8] | 60000 lumens |
| CLO | Custom Lumen Output [1] |

– | CCT/CRI | |
|---|---|
| AM | monochromatic amber, 595nm |
| 27K8 | 2700K, 80 CRI |
| 3K7 | 3000K, 70 CRI |
| 3K8 | 3000K, 80 CRI |
| 3K9 | 3000K, 90 CRI |
| 35K8 | 3500K, 80 CRI |
| 4K7 | 4000K, 70 CRI |
| 4K8 | 4000K, 80 CRI |
| 4K9 | 4000K, 90 CRI |
| 5K7 | 5000K, 70 CRI |
| 5K8 | 5000K, 80 CRI |

– | Distribution | |
|---|---|
| FR | Auto Front Row |
| 2 | Type 2 |
| 3 | Type 3 |
| 4F | Type 4 Forward |
| 4W | Type 4 Wide |
| 5QN | Type 5 Square Narrow |
| 5QW | Type 5 Square Wide |
| 5QM | Type 5 Square Medium |
| 5W | Type 5 Wide (Round) |
| 5RW | Type 5 Rectangular |
| C | Corner Optic |
| TC | Tennis Court Optic |

– | Optic Rotation | |
|---|---|
| BLANK | No Rotation |
| L | Optic rotation left |
| R | Optic rotation right |

– | Voltage | |
|---|---|
| UNV | 120-277V |
| 120 | 120V |
| 208 | 208V |
| 240 | 240V |
| 277 | 277V |
| 347 | 347V |
| 480 | 480V |

–

Mounting	
A	Arm mount for square pole/flat surface
A_	Arm mount for round pole [3]
ASQU	Universal arm mount for square pole
A_U	Universal arm mount for round pole [3]
AAU	Adjustable arm for pole mounting (universal drill pattern)
AA_U	Adjustable arm mount for round pole [3]
ADU	Decorative upswept Arm (universal drill pattern)
AD_U	Decorative upswept arm mount for round pole [3]
MAF	Mast arm fitter for 2-3/8" OD horizontal arm
K	Knuckle
T	Trunnion
WB	Wall Bracket, horizontal tenon with MAF
WM	Wall mount bracket with decorative upswept arm
WA	Wall mount bracket with adjustable arm

– | Color | |
|---|---|
| BLT | Black Matte Textured |
| BLS | Black Gloss Smooth |
| DBT | Dark Bronze Matte Textured |
| DBS | Dark Bronze Gloss Smooth |
| GTT | Graphite Matte Textured |
| LGS | Light Grey Gloss Smooth |
| LGT | Light Grey Gloss Textured |
| PSS | Platinum Silver Smooth |
| WHT | White Matte Textured |
| WHS | White Gloss Smooth |
| VGT | Verde Green Textured |

Color Option	
CC	Custom Color

– | Options | |
|---|---|
| F | Fusing |
| E | Battery Backup [1,2,7,8,9] |
| 2PF | Dual Power Feed |
| 2DR | Dual Driver |
| TE | Tooless Entry |
| BC | Backlight Control |
| TB | Terminal Block |

Network Control Options	
NXWS16F	NX Networked Wireless Enabled Integral NXSMP2-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming [1,3,4]
NXWS40F	NX Networked Wireless Enabled Integral NXSMP2-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming [1,3,4]
NXW	NX Networked Wireless Radio Module NXRM2 and Bluetooth Programming, without Sensor [3,4]
WIR	wiSCAPE® In-Fixture Module [3,4]
WIRSC	wiSCAPE® Module and Occupancy Sensor [3,4]

Stand Alone Sensors	
BTS-14F	Bluetooth® Programmable, BTSMP-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens
BTS-40F	Bluetooth® Programmable, BTSMP-HMO PIR Occupancy Sensor with Automatic Dimming® Photocell and 360° Lens
BTSO-12F	Bluetooth® Programmable, BTSMP-OMNI-O PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens
7PR	7-Pin Receptacle [4]
7PR-SC	7-Pin Receptacle with shorting cap [4]
3PR	3-Pin twist lock [4]
3PR-SC	3-Pin receptacle with shorting cap [4]
3PR-TL	3-Pin PCR with photocontrol [4]

Programmed Controls	
ADD	AutoDim Timer Based Dimming [4]
ADT	AutoDim Time of Day Dimming [4]

Photocontrols	
PC	Button Photocontrol [4,7]

1 – Items with a grey background can be done as a custom order. Contact brand representative for more information
2 – Battery temperature rating -20C to 55C
3 – Replace "_" with "3" for 3.5"-4.13" OD pole, "4" for 4.18"-5.25" OD pole, "5" for 5.5"-6.5" OD pole
4 – Networked Controls cannot be combined with other control options
5 – Not available with 2PF option
6 – Not available with 480V
7 – Not available with 347 or 480V
8 – Not available with Dual Driver option
9 – Only available in Size 1 housing, up to 105 Watts
10 – Some voltage restrictions may apply when combined with controls

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DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

VIPER Area/Site

VIPER LUMINAIRE

ORDERING GUIDE (CONTINUED)

CATALOG #

Accessory Type		Size		Option		Color	
SHD	Shield	**1**	Size 1	**HSS-90-B**	House Side Shield 90° Back	**BLS**	Black Gloss Smooth
		2	Size 2	**HSS-90-F**	House Side Shield 90° Front	**BLT**	Black Matte Textured
		3	Size 3	**HSS-90-S**	House Side Shield 90° Side	**DBS**	Dark Bronze Gloss Smooth
		4	Size 4	**HSS-270-BSS**	House Side Shield 270° Back/Side/Side	**DBT**	Dark Bronze Matte Textured
				HSS-270-FSS	House Side Shield 270° Front/Side/Side	**GTT**	Graphite Matte Textured
				HSS-270-FSB	House Side Shield 270° Front/Side/Back	**LGS**	Light Gray Gloss Smooth
				HSS-360	House Side Shield 360°	**PSS**	Platinum Silver Smooth
				BC	Back Light Control	**WHS**	White Gloss Smooth
MTG	Mounting			**A**	Arm Mount for square pole/flat surface	**WHT**	White Matte Textured
				ASQU	Universal Arm Mount for square pole	**VGT**	Green Landscape Decorative
				AAU	Adjustable Arm for pole mounting	**LEG**	Legacy Colors
				ADU	Decorative upswept Arm	**Color Option**	
				RPA	Round Pole Adapter	**CC**	Custom Color
				MAF	Mast Arm Fitter for 2-3/8" OD horizontal arm		
				K	Knuckle		
				T	Trunnion		
				WB	Wall Bracket (compatible with universal arm mounts)		

Accessory Type		Option	
MSC	Miscellaneous	**BIRD SPK**	Bird Spike

Current Control Solutions — Accessories (Sold Separately)

NX Lighting Controls

☐ **NXOFM-1R1D-UNV** — On-fixture Module (7-pin), On / Off / Dim, Daylight Sensor with NX Radio and Bluetooth® Radio, 120–480VAC

wiSCAPE® Lighting Control

☐ **WIR-RME-L** — On-fixture Module (7-pin or 5-pin), On / Off / Dim, Daylight Sensor with wiSCAPE Radio, 110–480VAC

☐ **SCP-REMOTE** — Remote Control for SCP/_F option. Order at least one per project to program and control the occupancy sensor

For additional information related to these accessories please visit currentlighting.com/beacon. Options provided for use with integrated sensor, please view specification sheet ordering information table for details.

CONTROLS

wiSCAPE™ NX LIGHTING CONTROLS™

Control Option	Sensor	Networkable	Scheduling	Occupancy	Daylight Harvesting	On/Off Control	Programming	Pair with Sensor	Sensor Mounting Height
NXW	–	✔	✔	–	–	✔	✔	–	–
NXWS_F	NXSMP2	✔	✔	✔	✔	✔	✔	–	16ft, 40ft
BTSO12F	BTSMP-OMNI-O	–	–	✔	✔	✔	Bluetooth	–	12ft
BTS_F	BTSMP	–	–	✔	✔	✔	Bluetooth	–	14ft, 40ft
ADD	–	–	✔	–	–	✔	–	✔	–
ADT	–	–	✔	–	–	✔	–	✔	–
7PR	–	Paired with external control	Paired with external control	–	Paired with external control	Paired with external control	–	✔	–
7PR-SC	–	–	–	–	–	–	–	✔	–
3PR	–	–	–	–	–	Paired with external control	–	✔	–
3PR-SC	–	–	–	–	–	–	–	✔	–
3PR-TL	–	–	–	–	✔	✔	–	✔	–
WIR	–	✔	✔	–	✔	✔	Gateway	–	–
WIRSC	BTSMP	✔	✔	✔	✔	✔	Gateway	–	14ft, 40ft

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DATE: LOCATION:

TYPE: PROJECT:

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VIPER Area/Site

VIPER LUMINAIRE

DELIVERED LUMENS

For delivered lumens, please see Lumens Data PDF on www.Currentlighting.com

PROJECTED LUMEN MAINTENANCE

Ambient Temp.	0	25,000	*TM-21-11 36,000	50,000	100,000	Calculated L_{70} (Hours)
25°C / 77°F	1.00	0.97	0.96	0.95	0.91	408,000
40°C / 104°F	0.99	0.96	0.95	0.94	0.89	356,000

LUMINAIRE AMBIENT TEMPERATURE FACTOR (LATF)

Ambient Temperature		Lumen Multiplier
0°C	32°F	1.03
10°C	50°F	1.01
20°C	68°F	1.00
25°C	77°F	1.00
30°C	86°F	0.99
40°C	104°F	0.98

Micro Strike Lumen Multiplier			
CCT	70 CRI	80 CRI	90 CRI
2700K	–	0.841	–
3000K	0.977	0.861	0.647
3500K	–	0.900	–
4000K	1	0.926	0.699
5000K	1	0.937	0.791
Monochromatic Amber Multiplier			
Amber	0.250		

Strike Lumen Multiplier			
CCT	70 CRI	80 CRI	90 CRI
2700K	0.9	0.81	0.62
3000K	0.933	0.853	0.659
3500K	0.959	0.894	0.711
4000K	1	0.9	0.732
5000K	1	0.9	0.732
Monochromatic Amber Multiplier			
Amber	0.255		

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VIPER Area/Site

VIPER LUMINAIRE

DATE: | LOCATION:

TYPE: | PROJECT:

CATALOG #:

ELECTRICAL DATA: MICRO STRIKE

# OF LEDS	160						
NOMINAL WATTAGE	35	50	75	100	115	135	160
SYSTEM POWER (W)	34.9	50.5	72.1	97.2	111.9	132.2	157.8
INPUT VOLTAGE (V)	CURRENT (Amps)						
120	0.29	0.42	0.63	0.83	0.96	1.13	1.33
208	0.17	0.24	0.36	0.48	0.55	0.65	0.77
240	0.15	0.21	0.31	0.42	0.48	0.56	0.67
277	0.13	0.18	0.27	0.36	0.42	0.49	0.58
347	0.10	0.14	0.22	0.29	0.33	0.39	0.46
480	0.07	0.10	0.16	0.21	0.24	0.28	0.33

# OF LEDS	320						
NOMINAL WATTAGE	145	170	185	210	235	255	315
SYSTEM POWER (W)	150	166.8	185.7	216.2	240.9	261.5	312
INPUT VOLTAGE (V)	CURRENT (Amps)						
120	1.21	1.42	1.54	1.75	1.96	2.13	2.63
208	0.70	0.82	0.89	1.01	1.13	1.23	1.51
240	0.60	0.71	0.77	0.88	0.98	1.06	1.31
277	0.52	0.61	0.67	0.76	0.85	0.92	1.14
347	0.42	0.49	0.53	0.61	0.68	0.73	0.91
480	0.30	0.35	0.39	0.44	0.49	0.53	0.66

# OF LEDS	480					
NOMINAL WATTAGE	285	320	340	390	425	470
SYSTEM POWER (W)	286.2	316.7	338.4	392.2	423.2	468
INPUT VOLTAGE (V)	CURRENT (Amps)					
120	2.38	2.67	2.83	3.25	3.54	3.92
208	1.37	1.54	1.63	1.88	2.04	2.26
240	1.19	1.33	1.42	1.63	1.77	1.96
277	1.03	1.16	1.23	1.41	1.53	1.70
347	0.82	0.92	0.98	1.12	1.22	1.35
480	0.59	0.67	0.71	0.81	0.89	0.98

# OF LEDS	720				
NOMINAL WATTAGE	435	475	515	565	600
SYSTEM POWER (W)	429.3	475	519.1	565.2	599.9
INPUT VOLTAGE (V)	CURRENT (Amps)				
120	3.63	3.96	4.29	4.71	5.00
208	2.09	2.28	2.48	2.72	2.88
240	1.81	1.98	2.15	2.35	2.50
277	1.57	1.71	1.86	2.04	2.17
347	1.25	1.37	1.48	1.63	1.73
480	0.91	0.99	1.07	1.18	1.25

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DATE: LOCATION:

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VIPER Area/Site

VIPER LUMINAIRE

ELECTRICAL DATA: STRIKE

# OF LEDS	36				
NOMINAL WATTAGE	39	55	85	105	120
SYSTEM POWER (W)	39.6	56.8	83.6	108.2	120.9
INPUT VOLTAGE (V)	CURRENT (Amps)				
120	0.33	0.46	0.71	0.88	0.96
208	0.19	0.26	0.41	0.50	0.55
240	0.16	0.23	0.35	0.44	0.48
277	0.14	0.20	0.31	0.38	0.42
347	0.11	0.16	0.24	0.30	0.33
480	0.08	0.11	0.18	0.22	0.24

# OF LEDS	72				
NOMINAL WATTAGE	115	145	180	210	240
SYSTEM POWER (W)	113.7	143.2	179.4	210.2	241.7
INPUT VOLTAGE (V)	CURRENT (Amps)				
120	1.00	1.21	1.50	1.75	1.79
208	0.58	0.70	0.87	1.01	1.03
240	0.50	0.60	0.75	0.88	0.90
277	0.43	0.52	0.65	0.76	0.78
347	0.35	0.42	0.52	0.61	0.62
480	0.25	0.30	0.38	0.44	0.45

# OF LEDS	108				
NOMINAL WATTAGE	215	250	280	325	365
SYSTEM POWER (W)	214.8	250.8	278.3	324.7	362.6
INPUT VOLTAGE (V)	CURRENT (Amps)				
120	2.00	2.08	2.33	3.04	2.67
208	1.15	1.20	1.35	1.75	1.54
240	1.00	1.04	1.17	1.52	1.33
277	0.87	0.90	1.01	1.32	1.16
347	0.69	0.72	0.81	1.05	0.92
480	0.50	0.52	0.58	0.76	0.67

# OF LEDS		162				
NOMINAL WATTAGE	320	365	405	445	485	545
SYSTEM POWER (W)	322.1	362.6	403.6	445.1	487.1	543.9
INPUT VOLTAGE (V)		CURRENT (Amps)				
120	2.71	2.67	3.38	3.71	4.04	4.54
208	1.56	1.54	1.95	2.14	2.33	2.62
240	1.35	1.33	1.69	1.85	2.02	2.27
277	1.17	1.16	1.46	1.61	1.75	1.97
347	0.94	0.92	1.17	1.28	1.40	1.57
480	0.68	0.67	0.84	0.93	1.01	1.14

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VIPER Area/Site

VIPER LUMINAIRE

DATE: LOCATION:

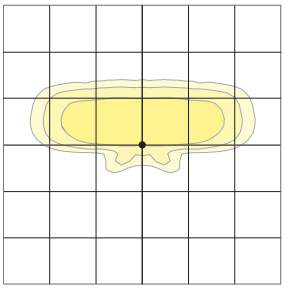
TYPE: PROJECT:

CATALOG #:

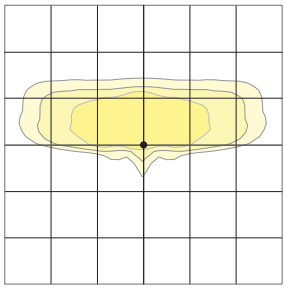
MICRO STRIKE PHOTOMETRY

The following diagrams represent the general distribution options offered for this product. For detailed information on specific product configurations, see website photometric test reports.

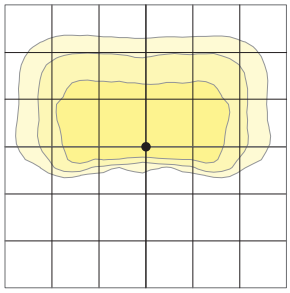
Type 2



Type 3



Type 4 Wide



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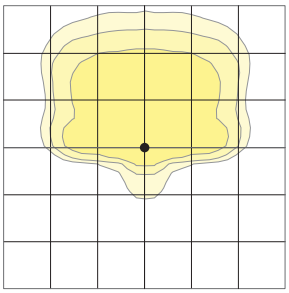

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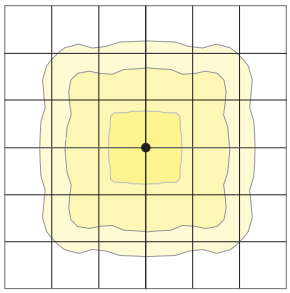

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DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

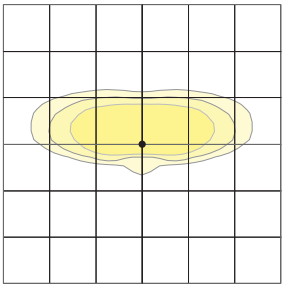
VIPER Area/Site

VIPER LUMINAIRE

OPTIC STRIKE PHOTOMETRY

The following diagrams represent the general distribution options offered for this product. For detailed information on specific product configurations, see website photometric test reports.

Type FR – Front Row/Auto Optic



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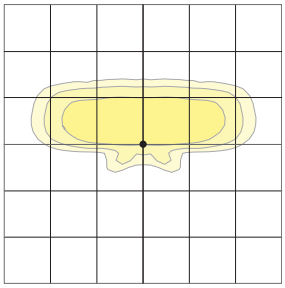

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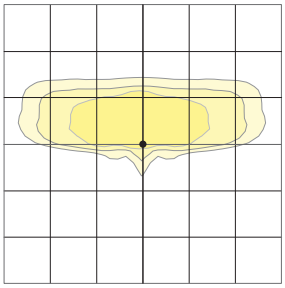
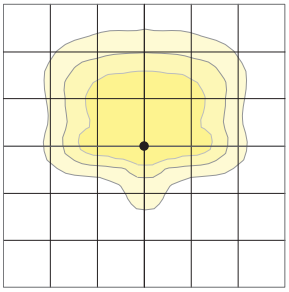


Type 4 Forward



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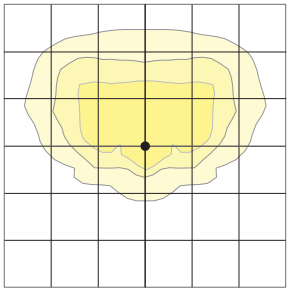
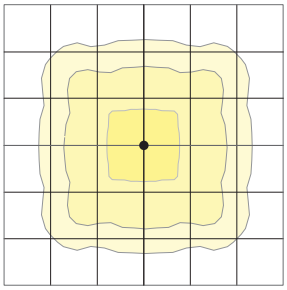
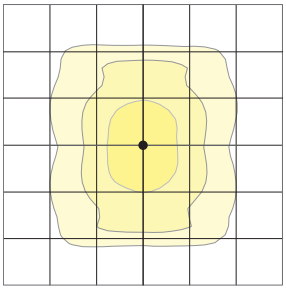


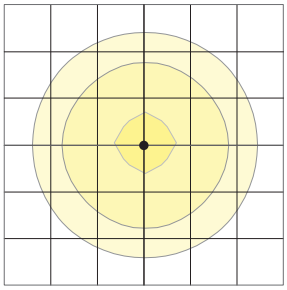
Type 5QM



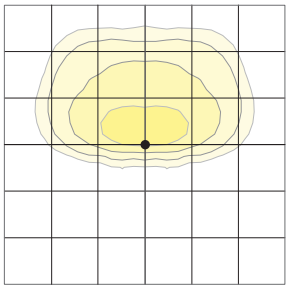
Type 5R (rectangular)



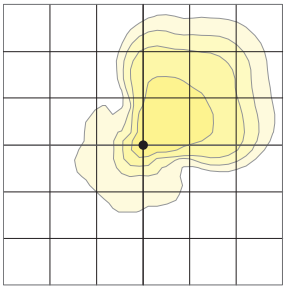
Type 5W (round wide)



Type TC



Type Corner



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DATE: LOCATION:

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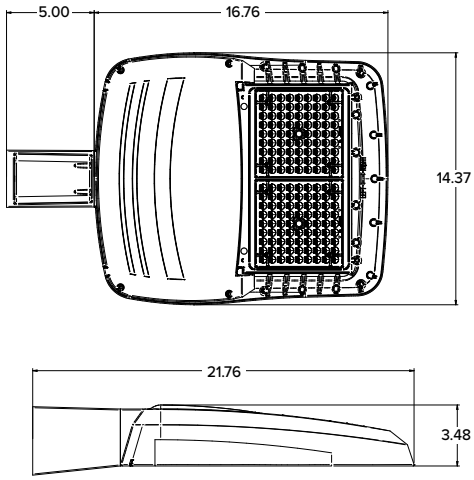
VIPER Area/Site

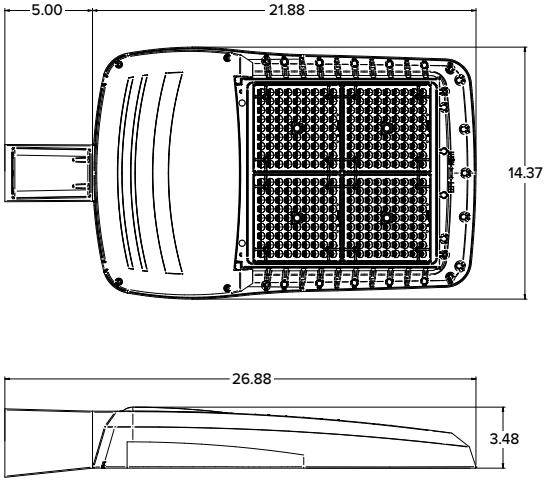
VIPER LUMINAIRE

DIMENSIONS

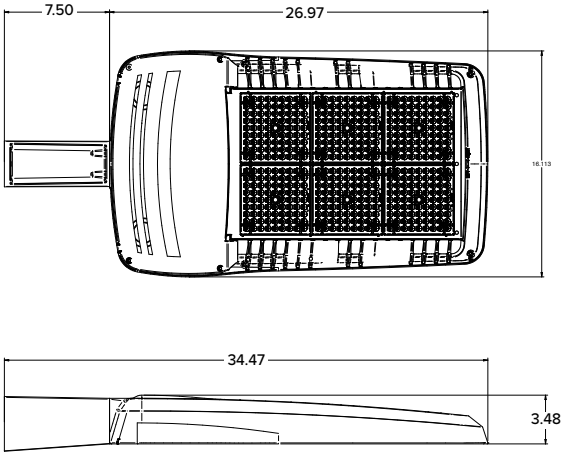
SIZE 1



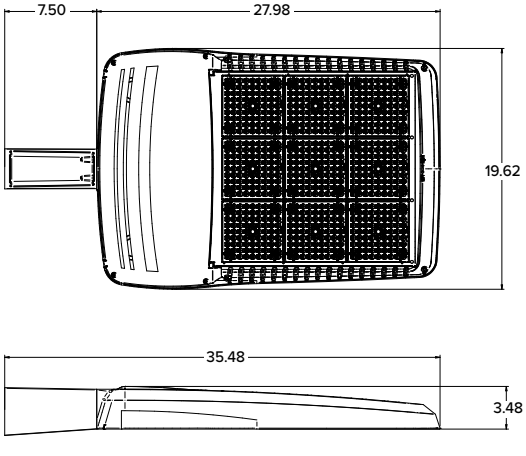
SIZE 2



SIZE 3



SIZE 4



	EPA				
	VP1 (Size 1)	VP2 (Size 2)	VP3 (Size 3)	VP4 (Size 4)	Config.
Single Fixture	0.454	0.555	0.655	0.698	
Two at 180	0.908	1.110	1.310	1.396	
Two at 90	0.583	0.711	0.857	0.948	
Three at 90	1.037	1.266	1.512	1.646	
Three at 120	0.943	1.155	1.392	1.680	
Four at 90	1.166	1.422	1.714	1.896	

	Weight	
	lbs	kgs
VP1 (Size 1)	13.7	6.2
VP2 (Size 2)	16.0	7.26
VP3 (Size 3)	25.9	11.7
VP4 (Size 4)	30.8	13.9

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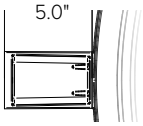
VIPER Area/Site

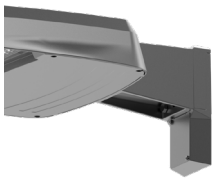
VIPER LUMINAIRE

MOUNTING

A–STRAIGHT ARM MOUNT

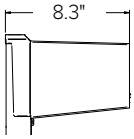
Fixture ships with integral arm for ease of installation. Compatible with Current Outdoor B3 drill pattern for ease of installation on square poles. For round poles add applicable suffix (2/3/4/5)

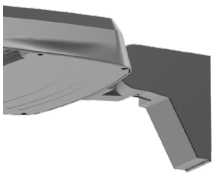




ASQU–UNIVERSAL ARM MOUNT

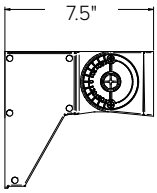
Universal mounting block for ease of installation. Compatible with drill patterns from 2.5" to 4.5" and Current drill pattern S2. For round poles add applicable suffix (2/3/4/5)

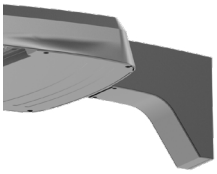




AAU–ADJUSTABLE ARM FOR POLE MOUNTING

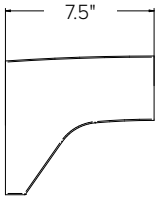
Rotatable arm mounts directly to pole. Compatible with drill patterns from 2.5" to 4.5" and Current drill pattern S2 and B3. For round poles add applicable suffix (2/3/4/5). Rotatable in 15˚ aiming angle increments. Micro Strike configurations have a 45° aiming limitation.
Strike configurations have a 30° aiming limitation.

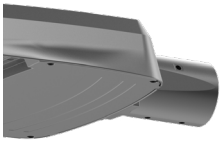




ADU–DECORATIVE UPSWEPT ARM

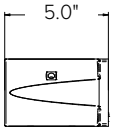
Upswept Arm compatible with drill patterns from 2.5" to 4.5" and Current drill pattern S2. For round poles add applicable suffix (2/3/4/5).

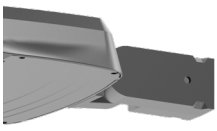




MAF–MAST ARM FITTER

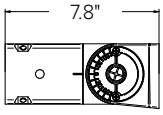
Fits 2-3/8" OD horizontal tenons.

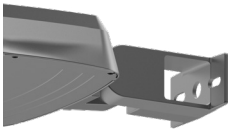




K–KNUCKLE

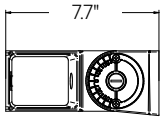
Knuckle mount 15˚ aiming angle increments for precise aiming and control, fits 2-3/8" tenons or pipes. Micro Strike configurations have a 45° aiming limitation. Strike configurations have a 30° aiming limitation.

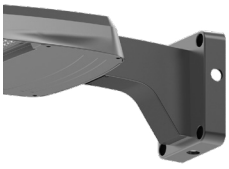




T–TRUNNION

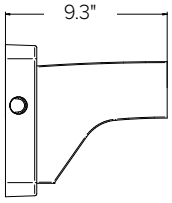
Trunnion for surface and crossarm mounting using (1) 3/4" or (2) 1/2" size through bolts. Micro Strike configurations have a 45° aiming limitation. Strike configurations have a 30° aiming limitation.





WM–WALL MOUNT

Compatible with universal arm mount, adjustable arm mount, and decorative arm mount. The WA option uses the same wall bracket but replaces the decorative arm with an adjustable arm.



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VIPER Area/Site

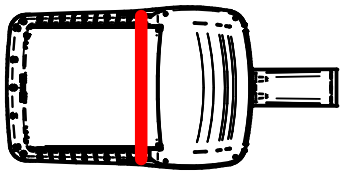
VIPER LUMINAIRE

ADDITIONAL INFORMATION (CONTINUED)

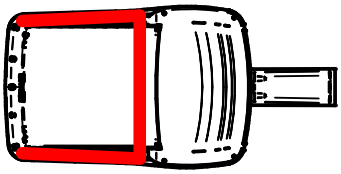
HOUSE SIDE SHIELD FIELD INSTALL ACCESSORIES

HSS has a depth of 5" for all Viper sizes
Not to be used with Occupancy Sensors as the shield may block the light to the sensor.

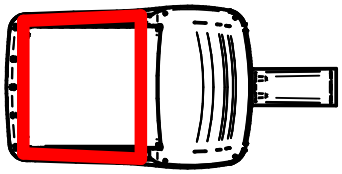
VPR2x HSS-90-B-xx



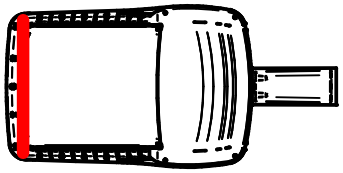
VPR2x HSS-270-BSS-xx



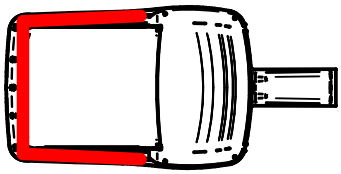
VPR2x HSS-360-xx



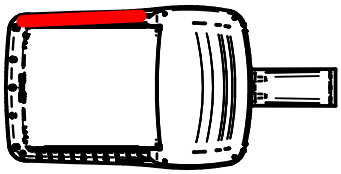
VPR2x HSS-90-F-xx



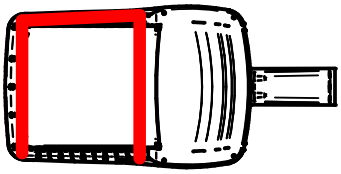
VPR2x HSS-270-FSS-xx



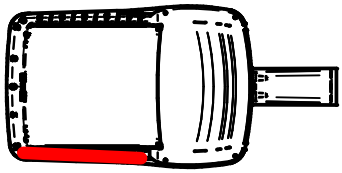
VPR2x HSS-90-S-xx



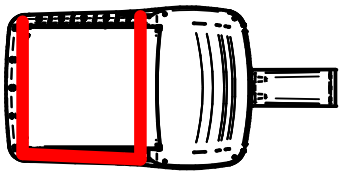
VPR2x HSS-270-FSB-xx



VPR2x HSS-90-S-xx



VPR2x HSS-270-FSB-xx



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ADDITIONAL INFORMATION (CONTINUED)

PROGRAMMED CONTROLS

ADD-AutoDim Timer Based Options

- Light delay options from 1-9 hours after the light is turned on to dim the light by 10-100%. To return the luminaire to its original light level there are dim return options from 1-9 hours after the light has been dimmed previously.

EX: ADD-6-5-R6

ADD Control Options	Configurations Choices	Example Choice Picked
Auto-Dim Options	1-9 Hours	6 - Delay 6 hours
Auto-Dim Brightness	10-100% Brightness	5 - Dim to 50% brightness
Auto-Dim Return	Delay 0-9 Hours	R6 - Return to full output after 6 hours

ADT-AutoDim Time of Day Based Option

- Light delay options from 1AM-9PM after the light is turned on to dim the light by 10-100%. To return the luminaire to its original light level there are dim return options from 1AM-9PM after the light has been dimmed previously.

EX: ADT-6-5-R6

ADD Control Options	Configurations Choices	Example Choice Picked
Auto-Dim Options	12-3 AM and 6-11 PM	6 - Dim at 6PM
Auto-Dim Brightness	10-100% Brightness	5 - Dim to 50%
Auto-Dim Return	12-6 AM and 9-11P	R6 - Return to full output at 6AM

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VIPER Area/Site

VIPER LUMINAIRE

DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

MICROSTRIKE | OPTICS STRIKE

FEATURES

- Low profile LED area/site luminaire with a variety of IES distributions for lighting applications such as auto dealership, retail, commercial, and campus parking lots
- Featuring two different optical technologies, Strike and Micro Strike Optics, which provide the best distribution patterns for retrofit or new construction
- Rated for high vibration applications including bridges and overpasses. All sizes are rated for 1.5G
- Control options including photo control, occupancy sensing, NX Lighting Controls™, wiSCAPE and 7-Pin with networked controls
- New customizable lumen output feature allows for the wattage and lumen output to be customized in the factory to meet whatever specification requirements may entail
- Field interchangeable mounting provides additional flexibility after the fixture has shipped

c UL us IP65

BUY AMERICAN SOLUTIONS
See Certification Specifications

DLC LISTED

DLC LISTED PREMIUM

CONTROL TECHNOLOGY

NX LIGHTING CONTROLS wiSCAPE™

SPECIFICATIONS

CONSTRUCTION

- Die-cast housing with hidden vertical heat fins are optimal for heat dissipation while keeping a clean smooth outer surface
- Corrosion resistant, die-cast aluminum housing with 1000 hour powder coat paint finish
- External hardware is corrosion resistant

OPTICS

- Micro Strike Optics (160, 320, 480, or 720 LED counts) maximize uniformity in applications and come standard with mid-power LEDs which evenly illuminate the entire luminous surface area to provide a low glare appearance. Catalog logic found on page 2
- Strike Optics (36, 72, 108, or 162 LED counts) provide best in class distributions and maximum pole spacing in new applications with high powered LEDs. Strike optics are held in place with a polycarbonate bezel to mimic the appearance of the Micro Strike Optics so both solutions can be combined on the same application. Catalog logic found on page 3
- Both optics maximize target zone illumination with minimal losses at the house-side, reducing light trespass issues. Additional backlight control shields and house side shields can be added for further reduction of illumination behind the pole
- One-piece silicone gasket ensures a weatherproof seal
- Zero up-light at 0 degrees of tilt
- Field rotatable optics

INSTALLATION

- Mounting patterns for each arm can be found on page 11
- Optional universal mounting block for ease of installation during retrofit applications. Available as an option (ASQU) or accessory for square and round poles
- All mounting hardware included

INSTALLATION (CONTINUED)

- Knuckle arm fitter option available for 2-3/8" OD tenon
- For products with EPA less than 1 mounted to a pole greater that 20ft, a vibration damper is recommended

ELECTRICAL

- Universal 120-277 VAC or 347-480 VAC input voltage, 50/60 Hz
- Ambient operating temperature -40˚C to 40˚C
- Drivers have greater than 90% power factor and less than 20% THD
- LED drivers have output power over-voltage, over-current protection and short circuit protection with auto recovery
- Field replaceable surge protection device provides 20kA protection meeting ANSI/IEEE C62.41.2 Category C High and Surge Location Category C3; Automatically takes fixture off-line for protection when device is compromised
- Dual Driver option provides 2 drivers within luminaire but only one set of leads exiting the luminaire, where Dual Power Feed provides two drivers which can be wired independently as two sets of leads are extended from the luminaire. Both options cannot be combined

CONTROLS

- Photo control, occupancy sensor programmable controls, and Zigbee wireless controls available for complete on/off and dimming control
- Please consult brand or sales representative when combining control and electrical options as some combinations may not operate as anticipated depending on your application
- 7-pin ANSI C136.41-2013 photocontrol receptacle option available for twist lock photocontrols or wireless control modules (control accessories sold separately)

CONTROLS (CONTINUED)

- 0- 10V Dimming Drivers are standard and dimming leads are extended out of the luminaire unless control options require connection to the dimming leads. Must specify if wiring leads are to be greater than the 6" standard
- NX Lighting Controls™ available with in fixture wireless control module, features dimming and occupancy sensor
- wiSCAPE® available with in fixture wireless control module, features dimming and occupancy sensor. Also available in 7-pin configuration

CERTIFICATIONS

- DLC® (DesignLights Consortium Qualified), with both Premium and Standard Qualified configurations. Please refer to the DLC website for specific product qualifications at http://www.designlights.org
- Listed to UL1598 and CSA C22.2#250.0-24 for wet locations and 40˚C ambient temperatures
- 1.5 G rated for ANSI C136.31 high vibration applications
- Fixture is IP65 rated
- Meets IDA recommendations using 3K CCT configuration at 0 degrees of tilt
- This product qualifies as a "designated country construction material" per FAR 52.225-11 Buy American-Construction Materials under Trade Agreements effective 04/23/2020.

WARRANTY

- 5 year warranty

KEY DATA	
Lumen Range	5,000–80,000
Wattage Range	36–600
Efficacy Range (LPW)	92–155
Weight lbs. (kg)	13.7-30.9 (6.2-13.9)

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DATE: | LOCATION:

TYPE: | PROJECT:

CATALOG #:

VIPER Area/Site

VIPER LUMINAIRE

MICROSTRIKE OPTICS – ORDERING GUIDE

Example: VP–2–320L-145–3K7–2–R–UNV–A3–BLT

CATALOG #

VP – | Series | Optic Platform | Size | Light Engine | CCT/CRI | Distribution | Optic Rotation | Voltage

Series	Optic Platform
VP Viper	Micro Strike

Size	Light Engine	
1 Size 1	160L-35 [6]	5500 lumens
	160L-50 [6]	7500 lumens
	160L-75	10000 lumens
	160L-100	12500 lumens
	160L-115	15000 lumens
	160L-135	18000 lumens
	160L-160	21000 lumens
2 Size 2	320L-145	21000 lumens
	320L-170	24000 lumens
	320L-185	27000 lumens
	320L-210	30000 lumens
	320L-235	33000 lumens
	320L-255	36000 lumens
	320L-315 [6]	40000 lumens
3 Size 3	480L-285	40000 lumens
	480L-320	44000 lumens
	480L-340	48000 lumens
	480L-390	52000 lumens
	480L-425	55000 lumens
	480L-470	60000 lumens
4 Size 4	720L-435	60000 lumens
	720L-475	65000 lumens
	720L-515	70000 lumens
	720L-565 [6]	75000 lumens
	720L-600 [6]	80000 lumens
	CLO	Custom Lumen Output [1]

CCT/CRI	
AP	AP-Amber Phosphor Converted
27K8	2700K, 80 CRI
3K7	3000K, 70 CRI
3K8	3000K, 80 CRI
35K8	3500K, 80 CRI
3K9	3000K, 90 CRI
4K7	4000K, 70 CRI
4K8	4000K, 80 CRI
4K9	4000K, 90 CRI
5K7	5000K, 70 CRI
5K8	5000K, 80 CRI

Distribution	
2	Type 2
3	Type 3
4F	Type 4 Forward
4W	Type 4 Wide
5QW	Type 5 Square Wide

Optic Rotation	
BLANK	No Rotation
L	Optic rotation left
R	Optic rotation right

Voltage	
UNV	120-277V
120	120V
208	208V
240	240V
277	277V
347	347V
480	480V

– | Mounting | Color | Options | – | Network Control Options

Mounting	
A	Arm mount for square pole/flat surface (B3 Drill Pattern) (Does not include round pole adapter)
A_	Arm mount for round pole [2]
ASQU	Universal arm mount for square pole. Can be used with B3 or S2 Drill Pattern
A_U	Universal arm mount for round pole [2]
AAU	Adjustable arm for pole mounting (universal drill pattern)
AA_U	Adjustable arm mount for round pole [2]
ADU	Decorative upswept Arm (universal drill pattern)
AD_U	Decorative upswept arm mount for round pole [2]
MAF	Mast arm fitter for 2-3/8" OD horizontal arm
K	Knuckle
T	Trunnion
WB	Wall Bracket, horizontal tenon with MAF
WM	Wall mount bracket with decorative upswept arm
WA	Wall mount bracket with adjustable arm

Color	
BLT	Black Matte Textured
BLS	Black Gloss Smooth
DBT	Dark Bronze Matte Textured
DBS	Dark Bronze Gloss Smooth
GTT	Graphite Matte Textured
LGS	Light Grey Gloss Smooth
LGT	Light Grey Gloss Textured
PSS	Platinum Silver Smooth
WHT	White Matte Textured
WHS	White Gloss Smooth
VGT	Verde Green Textured
Color Option	
CC	Custom Color

Options	
F	Fusing
2PF	Dual Power Feed
2DR	Dual Driver
TE	Tooless Entry
BC	Backlight Control [8]
TB	Terminal Block

Network Control Options	
NXWS16F	NX Networked Wireless Enabled Integral NXSMP2-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming [1,3,4]
NXWS40F	NX Networked Wireless Enabled Integral NXSMP2-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming [1,3,4]
NXW	NX Networked Wireless Radio Module NXRM2 and Bluetooth Programming, without Sensor [3,4]
WIR	wiSCAPE® In-Fixture Module [3,4]
WIRSC	wiSCAPE® Module and Occupancy Sensor [3,4]
Stand Alone Sensors	
BTS-14F	Bluetooth® Programmable, BTSMP-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens
BTS-40F	Bluetooth® Programmable, BTSMP-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens
BTSO-12F	Bluetooth® Programmable, BTSMP-OMNI-O PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens
7PR	7-Pin Receptacle [4]
7PR-SC	7-Pin Receptacle with shorting cap [4]
3PR	3-Pin twist lock [4]
3PR-SC	3-Pin receptacle with shorting cap [4]
3PR-TL	3-Pin PCR with photocontrol [4]
Programmed Controls	
ADD	AutoDim Timer Based Dimming [4]
ADT	AutoDim Time of Day Dimming [4]
Photocontrols	
PC	Button Photocontrol [4,7]

1 – Items with a grey background can be done as a custom order. Contact brand representative for more information
2 – Replace "_" with "2" for 2.5"-3.4" OD pole, "3" for 3.5"-4.13" OD pole, "4" for 4.18"-5.25" OD pole, "5" for 5.5"-6.5" OD pole
3 – Networked Controls cannot be combined with other control options
4 – Not available with 2PF option
5 – Not available with Dual Driver option
6 – Some voltage restrictions may apply when combined with controls
7 – Not available with 480V
8 – BC not available on 4F and type 5 distributions

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VIPER Area/Site

VIPER LUMINAIRE

STRIKE OPTIC – ORDERING GUIDE

Example: VP–ST–1–36L-39–3K7–2–UNV–A–BLT

CATALOG #

VP –

Series	
VP	Viper

– | Optic Platform | |
|---|---|
| ST | Strike |

– | Size | |
|---|---|
| 1 | Size 1 |
| 2 | Size 2 |
| 3 | Size 3 |
| 4 | Size 4 |

– | Light Engine | |
|---|---|
| 36L-39 [8] | 5500 lumens |
| 36L-55 [8] | 7500 lumens |
| 36L-85 | 10000 lumens |
| 36L-105 | 12500 lumens |
| 36L-120 | 14000 lumens |
| 72L-115 | 15000 lumens |
| 72L-145 | 18000 lumens |
| 72L-180 | 21000 lumens |
| 72L-210 | 24000 lumens |
| 72L-240 | 27000 lumens |
| 108L-215 [8] | 27000 lumens |
| 108L-250 | 30000 lumens |
| 108L-280 | 33000 lumens |
| 108L-325 | 36000 lumens |
| 108L-365 | 40000 lumens |
| 162L-320 | 40000 lumens |
| 162L-365 [10] | 44000 lumens |
| 162L-405 | 48000 lumens |
| 162L-445 | 52000 lumens |
| 162L-485 | 55000 lumens |
| 162L-545 [8] | 60000 lumens |
| CLO | Custom Lumen Output [1] |

– | CCT/CRI | |
|---|---|
| AM | monochromatic amber, 595nm |
| 27K8 | 2700K, 80 CRI |
| 3K7 | 3000K, 70 CRI |
| 3K8 | 3000K, 80 CRI |
| 3K9 | 3000K, 90 CRI |
| 35K8 | 3500K, 80 CRI |
| 4K7 | 4000K, 70 CRI |
| 4K8 | 4000K, 80 CRI |
| 4K9 | 4000K, 90 CRI |
| 5K7 | 5000K, 70 CRI |
| 5K8 | 5000K, 80 CRI |

– | Distribution | |
|---|---|
| FR | Auto Front Row |
| 2 | Type 2 |
| 3 | Type 3 |
| 4F | Type 4 Forward |
| 4W | Type 4 Wide |
| 5QN | Type 5 Square Narrow |
| 5QW | Type 5 Square Wide |
| 5QM | Type 5 Square Medium |
| 5W | Type 5 Wide (Round) |
| 5RW | Type 5 Rectangular |
| C | Corner Optic |
| TC | Tennis Court Optic |

– | Optic Rotation | |
|---|---|
| BLANK | No Rotation |
| L | Optic rotation left |
| R | Optic rotation right |

– | Voltage | |
|---|---|
| UNV | 120-277V |
| 120 | 120V |
| 208 | 208V |
| 240 | 240V |
| 277 | 277V |
| 347 | 347V |
| 480 | 480V |

–

Mounting	
A	Arm mount for square pole/flat surface
A_	Arm mount for round pole [3]
ASQU	Universal arm mount for square pole
A_U	Universal arm mount for round pole [3]
AAU	Adjustable arm for pole mounting (universal drill pattern)
AA_U	Adjustable arm mount for round pole [3]
ADU	Decorative upswept Arm (universal drill pattern)
AD_U	Decorative upswept arm mount for round pole [3]
MAF	Mast arm fitter for 2-3/8" OD horizontal arm
K	Knuckle
T	Trunnion
WB	Wall Bracket, horizontal tenon with MAF
WM	Wall mount bracket with decorative upswept arm
WA	Wall mount bracket with adjustable arm

– | Color | |
|---|---|
| BLT | Black Matte Textured |
| BLS | Black Gloss Smooth |
| DBT | Dark Bronze Matte Textured |
| DBS | Dark Bronze Gloss Smooth |
| GTT | Graphite Matte Textured |
| LGS | Light Grey Gloss Smooth |
| LGT | Light Grey Gloss Textured |
| PSS | Platinum Silver Smooth |
| WHT | White Matte Textured |
| WHS | White Gloss Smooth |
| VGT | Verde Green Textured |

Color Option	
CC	Custom Color

– | Options | |
|---|---|
| F | Fusing |
| E | Battery Backup [1,2,7,8,9] |
| 2PF | Dual Power Feed |
| 2DR | Dual Driver |
| TE | Tooless Entry |
| BC | Backlight Control |
| TB | Terminal Block |

Network Control Options	
NXWS16F	NX Networked Wireless Enabled Integral NXSMP2-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming [1,3,4]
NXWS40F	NX Networked Wireless Enabled Integral NXSMP2-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming [1,3,4]
NXW	NX Networked Wireless Radio Module NXRM2 and Bluetooth Programming, without Sensor [3,4]
WIR	wiSCAPE® In-Fixture Module [3,4]
WIRSC	wiSCAPE® Module and Occupancy Sensor [3,4]

Stand Alone Sensors	
BTS-14F	Bluetooth® Programmable, BTSMP-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens
BTS-40F	Bluetooth® Programmable, BTSMP-HMO PIR Occupancy Sensor with Automatic Dimming® Photocell and 360° Lens
BTSO-12F	Bluetooth® Programmable, BTSMP-OMNI-O PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens
7PR	7-Pin Receptacle [4]
7PR-SC	7-Pin Receptacle with shorting cap [4]
3PR	3-Pin twist lock [4]
3PR-SC	3-Pin receptacle with shorting cap [4]
3PR-TL	3-Pin PCR with photocontrol [4]

Programmed Controls	
ADD	AutoDim Timer Based Dimming [4]
ADT	AutoDim Time of Day Dimming [4]

Photocontrols	
PC	Button Photocontrol [4,7]

1 – Items with a grey background can be done as a custom order. Contact brand representative for more information
2 – Battery temperature rating -20C to 55C
3 – Replace "_" with "3" for 3.5"-4.13" OD pole, "4" for 4.18"-5.25" OD pole, "5" for 5.5"-6.5" OD pole
4 – Networked Controls cannot be combined with other control options
5 – Not available with 2PF option
6 – Not available with 480V
7 – Not available with 347 or 480V
8 – Not available with Dual Driver option
9 – Only available in Size 1 housing, up to 105 Watts
10 – Some voltage restrictions may apply when combined with controls

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TYPE: PROJECT:

CATALOG #:

VIPER Area/Site

VIPER LUMINAIRE

ORDERING GUIDE (CONTINUED)

CATALOG #

Accessory Type		Size		Option		Color	
SHD	Shield	**1**	Size 1	**HSS-90-B**	House Side Shield 90° Back	**BLS**	Black Gloss Smooth
		2	Size 2	**HSS-90-F**	House Side Shield 90° Front	**BLT**	Black Matte Textured
		3	Size 3	**HSS-90-S**	House Side Shield 90° Side	**DBS**	Dark Bronze Gloss Smooth
		4	Size 4	**HSS-270-BSS**	House Side Shield 270° Back/Side/Side	**DBT**	Dark Bronze Matte Textured
				HSS-270-FSS	House Side Shield 270° Front/Side/Side	**GTT**	Graphite Matte Textured
				HSS-270-FSB	House Side Shield 270° Front/Side/Back	**LGS**	Light Gray Gloss Smooth
				HSS-360	House Side Shield 360°	**PSS**	Platinum Silver Smooth
				BC	Back Light Control	**WHS**	White Gloss Smooth
MTG	Mounting			**A**	Arm Mount for square pole/flat surface	**WHT**	White Matte Textured
				ASQU	Universal Arm Mount for square pole	**VGT**	Green Landscape Decorative
				AAU	Adjustable Arm for pole mounting	**LEG**	Legacy Colors
				ADU	Decorative upswept Arm	**Color Option**	
				RPA	Round Pole Adapter	**CC**	Custom Color
				MAF	Mast Arm Fitter for 2-3/8" OD horizontal arm		
				K	Knuckle		
				T	Trunnion		
				WB	Wall Bracket (compatible with universal arm mounts)		

Accessory Type		Option	
MSC	Miscellaneous	**BIRD SPK**	Bird Spike

Current Control Solutions — Accessories (Sold Separately)

NX Lighting Controls

☐ **NXOFM-1R1D-UNV** — On-fixture Module (7-pin), On / Off / Dim, Daylight Sensor with NX Radio and Bluetooth® Radio, 120–480VAC

wiSCAPE® Lighting Control

☐ **WIR-RME-L** — On-fixture Module (7-pin or 5-pin), On / Off / Dim, Daylight Sensor with wiSCAPE Radio, 110–480VAC

☐ **SCP-REMOTE** — Remote Control for SCP/_F option. Order at least one per project to program and control the occupancy sensor

For additional information related to these accessories please visit currentlighting.com/beacon. Options provided for use with integrated sensor, please view specification sheet ordering information table for details.

CONTROLS

wiSCAPE™ NX LIGHTING CONTROLS™

Control Option	Sensor	Networkable	Scheduling	Occupancy	Daylight Harvesting	On/Off Control	Programming	Pair with Sensor	Sensor Mounting Height
NXW	–	✔	✔	–	–	✔	✔	–	–
NXWS_F	NXSMP2	✔	✔	✔	✔	✔	✔	–	16ft, 40ft
BTSO12F	BTSMP-OMNI-O	–	–	✔	✔	✔	Bluetooth	–	12ft
BTS_F	BTSMP	–	–	✔	✔	✔	Bluetooth	–	14ft, 40ft
ADD	–	–	✔	–	–	✔	–	✔	–
ADT	–	–	✔	–	–	✔	–	✔	–
7PR	–	Paired with external control	Paired with external control	–	Paired with external control	Paired with external control	–	✔	–
7PR-SC	–	–	–	–	–	–	–	✔	–
3PR	–	–	–	–	–	Paired with external control	–	✔	–
3PR-SC	–	–	–	–	–	–	–	✔	–
3PR-TL	–	–	–	–	✔	✔	–	✔	–
WIR	–	✔	✔	–	✔	✔	Gateway	–	–
WIRSC	BTSMP	✔	✔	✔	✔	✔	Gateway	–	14ft, 40ft

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DATE: LOCATION:

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VIPER Area/Site

VIPER LUMINAIRE

DELIVERED LUMENS

For delivered lumens, please see Lumens Data PDF on www.Currentlighting.com

PROJECTED LUMEN MAINTENANCE

Ambient Temp.	0	25,000	*TM-21-11 36,000	50,000	100,000	Calculated L_{70} (Hours)
25°C / 77°F	1.00	0.97	0.96	0.95	0.91	408,000
40°C / 104°F	0.99	0.96	0.95	0.94	0.89	356,000

LUMINAIRE AMBIENT TEMPERATURE FACTOR (LATF)

Ambient Temperature		Lumen Multiplier
0°C	32°F	1.03
10°C	50°F	1.01
20°C	68°F	1.00
25°C	77°F	1.00
30°C	86°F	0.99
40°C	104°F	0.98

Micro Strike Lumen Multiplier			
CCT	70 CRI	80 CRI	90 CRI
2700K	–	0.841	–
3000K	0.977	0.861	0.647
3500K	–	0.900	–
4000K	1	0.926	0.699
5000K	1	0.937	0.791
Monochromatic Amber Multiplier			
Amber	0.250		

Strike Lumen Multiplier			
CCT	70 CRI	80 CRI	90 CRI
2700K	0.9	0.81	0.62
3000K	0.933	0.853	0.659
3500K	0.959	0.894	0.711
4000K	1	0.9	0.732
5000K	1	0.9	0.732
Monochromatic Amber Multiplier			
Amber	0.255		

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VIPER Area/Site

VIPER LUMINAIRE

DATE: | LOCATION:

TYPE: | PROJECT:

CATALOG #:

ELECTRICAL DATA: MICRO STRIKE

# OF LEDS	160						
NOMINAL WATTAGE	35	50	75	100	115	135	160
SYSTEM POWER (W)	34.9	50.5	72.1	97.2	111.9	132.2	157.8
INPUT VOLTAGE (V)	CURRENT (Amps)						
120	0.29	0.42	0.63	0.83	0.96	1.13	1.33
208	0.17	0.24	0.36	0.48	0.55	0.65	0.77
240	0.15	0.21	0.31	0.42	0.48	0.56	0.67
277	0.13	0.18	0.27	0.36	0.42	0.49	0.58
347	0.10	0.14	0.22	0.29	0.33	0.39	0.46
480	0.07	0.10	0.16	0.21	0.24	0.28	0.33

# OF LEDS	320						
NOMINAL WATTAGE	145	170	185	210	235	255	315
SYSTEM POWER (W)	150	166.8	185.7	216.2	240.9	261.5	312
INPUT VOLTAGE (V)	CURRENT (Amps)						
120	1.21	1.42	1.54	1.75	1.96	2.13	2.63
208	0.70	0.82	0.89	1.01	1.13	1.23	1.51
240	0.60	0.71	0.77	0.88	0.98	1.06	1.31
277	0.52	0.61	0.67	0.76	0.85	0.92	1.14
347	0.42	0.49	0.53	0.61	0.68	0.73	0.91
480	0.30	0.35	0.39	0.44	0.49	0.53	0.66

# OF LEDS	480					
NOMINAL WATTAGE	285	320	340	390	425	470
SYSTEM POWER (W)	286.2	316.7	338.4	392.2	423.2	468
INPUT VOLTAGE (V)	CURRENT (Amps)					
120	2.38	2.67	2.83	3.25	3.54	3.92
208	1.37	1.54	1.63	1.88	2.04	2.26
240	1.19	1.33	1.42	1.63	1.77	1.96
277	1.03	1.16	1.23	1.41	1.53	1.70
347	0.82	0.92	0.98	1.12	1.22	1.35
480	0.59	0.67	0.71	0.81	0.89	0.98

# OF LEDS	720				
NOMINAL WATTAGE	435	475	515	565	600
SYSTEM POWER (W)	429.3	475	519.1	565.2	599.9
INPUT VOLTAGE (V)	CURRENT (Amps)				
120	3.63	3.96	4.29	4.71	5.00
208	2.09	2.28	2.48	2.72	2.88
240	1.81	1.98	2.15	2.35	2.50
277	1.57	1.71	1.86	2.04	2.17
347	1.25	1.37	1.48	1.63	1.73
480	0.91	0.99	1.07	1.18	1.25

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DATE: LOCATION:

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VIPER Area/Site

VIPER LUMINAIRE

ELECTRICAL DATA: STRIKE

# OF LEDS	36				
NOMINAL WATTAGE	39	55	85	105	120
SYSTEM POWER (W)	39.6	56.8	83.6	108.2	120.9
INPUT VOLTAGE (V)	CURRENT (Amps)				
120	0.33	0.46	0.71	0.88	0.96
208	0.19	0.26	0.41	0.50	0.55
240	0.16	0.23	0.35	0.44	0.48
277	0.14	0.20	0.31	0.38	0.42
347	0.11	0.16	0.24	0.30	0.33
480	0.08	0.11	0.18	0.22	0.24

# OF LEDS	72				
NOMINAL WATTAGE	115	145	180	210	240
SYSTEM POWER (W)	113.7	143.2	179.4	210.2	241.7
INPUT VOLTAGE (V)	CURRENT (Amps)				
120	1.00	1.21	1.50	1.75	1.79
208	0.58	0.70	0.87	1.01	1.03
240	0.50	0.60	0.75	0.88	0.90
277	0.43	0.52	0.65	0.76	0.78
347	0.35	0.42	0.52	0.61	0.62
480	0.25	0.30	0.38	0.44	0.45

# OF LEDS	108				
NOMINAL WATTAGE	215	250	280	325	365
SYSTEM POWER (W)	214.8	250.8	278.3	324.7	362.6
INPUT VOLTAGE (V)	CURRENT (Amps)				
120	2.00	2.08	2.33	3.04	2.67
208	1.15	1.20	1.35	1.75	1.54
240	1.00	1.04	1.17	1.52	1.33
277	0.87	0.90	1.01	1.32	1.16
347	0.69	0.72	0.81	1.05	0.92
480	0.50	0.52	0.58	0.76	0.67

# OF LEDS		162				
NOMINAL WATTAGE	320	365	405	445	485	545
SYSTEM POWER (W)	322.1	362.6	403.6	445.1	487.1	543.9
INPUT VOLTAGE (V)		CURRENT (Amps)				
120	2.71	2.67	3.38	3.71	4.04	4.54
208	1.56	1.54	1.95	2.14	2.33	2.62
240	1.35	1.33	1.69	1.85	2.02	2.27
277	1.17	1.16	1.46	1.61	1.75	1.97
347	0.94	0.92	1.17	1.28	1.40	1.57
480	0.68	0.67	0.84	0.93	1.01	1.14

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VIPER Area/Site

VIPER LUMINAIRE

DATE: LOCATION:

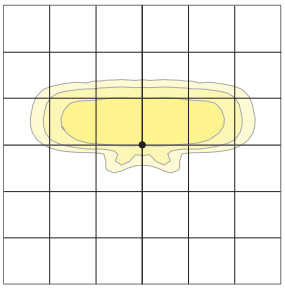
TYPE: PROJECT:

CATALOG #:

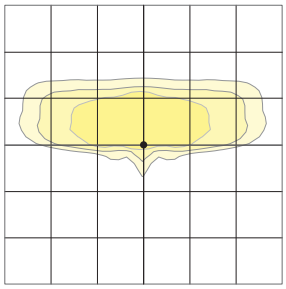
MICRO STRIKE PHOTOMETRY

The following diagrams represent the general distribution options offered for this product. For detailed information on specific product configurations, see website photometric test reports.

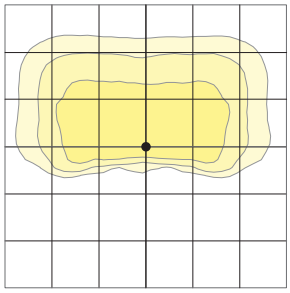
Type 2



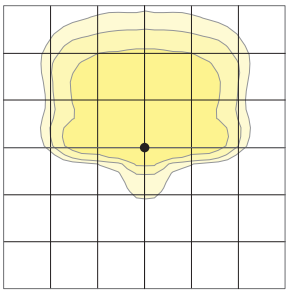
Type 3



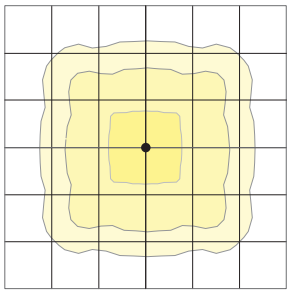
Type 4 Wide



Type 4F



Type 5QW



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DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

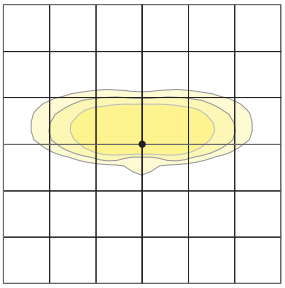
VIPER Area/Site

VIPER LUMINAIRE

OPTIC STRIKE PHOTOMETRY

The following diagrams represent the general distribution options offered for this product. For detailed information on specific product configurations, see website photometric test reports.

Type FR – Front Row/Auto Optic



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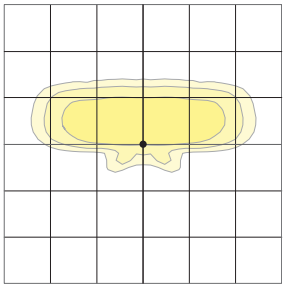

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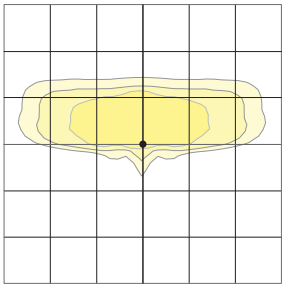
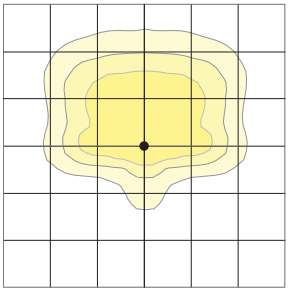
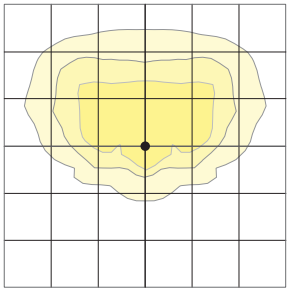


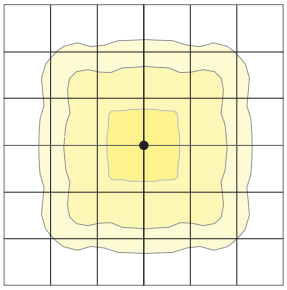
Type 4 Forward



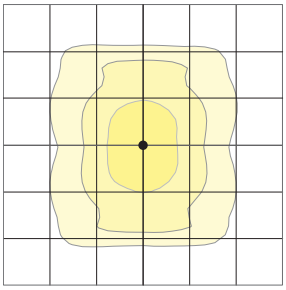
Type 4 Wide



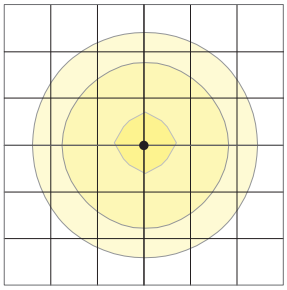
Type 5QM



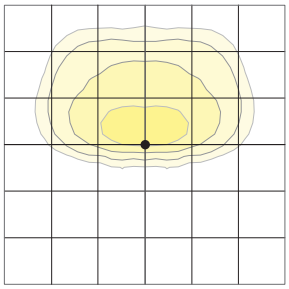
Type 5R (rectangular)



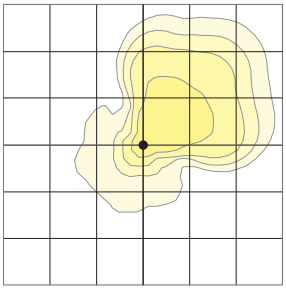
Type 5W (round wide)



Type TC



Type Corner



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BEACON
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DATE: LOCATION:

TYPE: PROJECT:

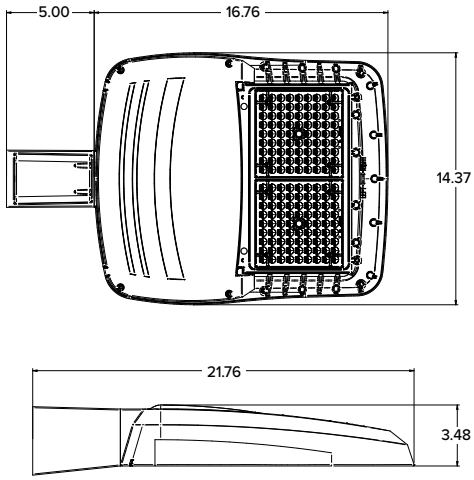
CATALOG #:

VIPER Area/Site

VIPER LUMINAIRE

DIMENSIONS

SIZE 1



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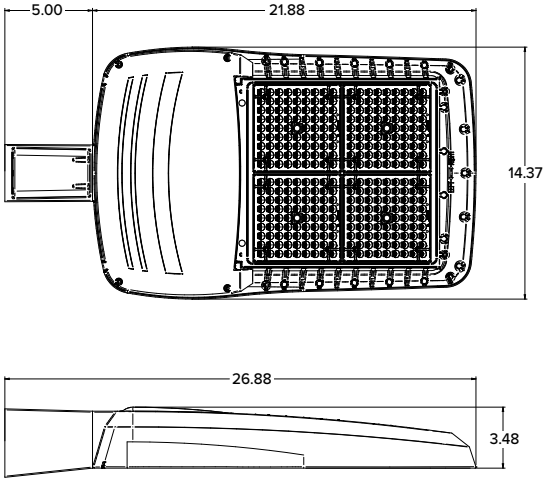
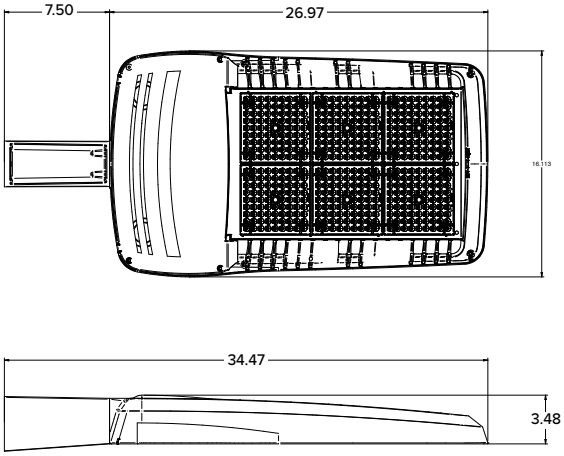
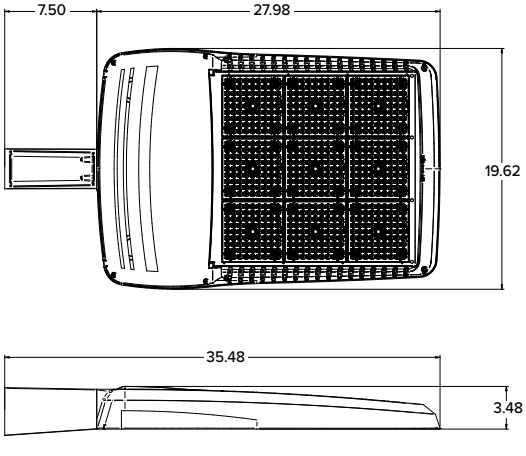


SIZE 3



SIZE 4



	EPA				
	VP1 (Size 1)	VP2 (Size 2)	VP3 (Size 3)	VP4 (Size 4)	Config.
Single Fixture	0.454	0.555	0.655	0.698	
Two at 180	0.908	1.110	1.310	1.396	
Two at 90	0.583	0.711	0.857	0.948	
Three at 90	1.037	1.266	1.512	1.646	
Three at 120	0.943	1.155	1.392	1.680	
Four at 90	1.166	1.422	1.714	1.896	

	Weight	
	lbs	kgs
VP1 (Size 1)	13.7	6.2
VP2 (Size 2)	16.0	7.26
VP3 (Size 3)	25.9	11.7
VP4 (Size 4)	30.8	13.9

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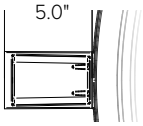
VIPER Area/Site

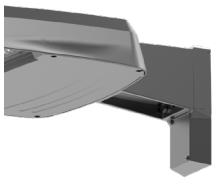
VIPER LUMINAIRE

MOUNTING

A–STRAIGHT ARM MOUNT

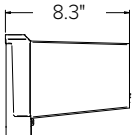
Fixture ships with integral arm for ease of installation. Compatible with Current Outdoor B3 drill pattern for ease of installation on square poles. For round poles add applicable suffix (2/3/4/5)

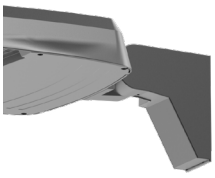




ASQU–UNIVERSAL ARM MOUNT

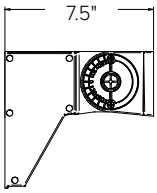
Universal mounting block for ease of installation. Compatible with drill patterns from 2.5" to 4.5" and Current drill pattern S2. For round poles add applicable suffix (2/3/4/5)

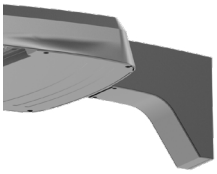




AAU–ADJUSTABLE ARM FOR POLE MOUNTING

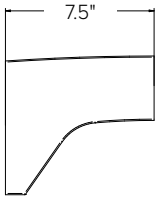
Rotatable arm mounts directly to pole. Compatible with drill patterns from 2.5" to 4.5" and Current drill pattern S2 and B3. For round poles add applicable suffix (2/3/4/5). Rotatable in 15˚ aiming angle increments. Micro Strike configurations have a 45° aiming limitation.
Strike configurations have a 30° aiming limitation.

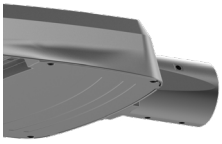




ADU–DECORATIVE UPSWEPT ARM

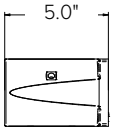
Upswept Arm compatible with drill patterns from 2.5" to 4.5" and Current drill pattern S2. For round poles add applicable suffix (2/3/4/5).

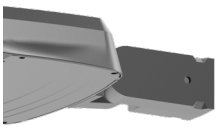




MAF–MAST ARM FITTER

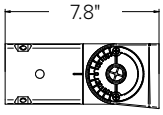
Fits 2-3/8" OD horizontal tenons.

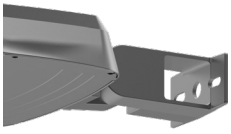




K–KNUCKLE

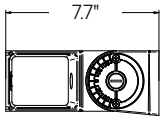
Knuckle mount 15˚ aiming angle increments for precise aiming and control, fits 2-3/8" tenons or pipes. Micro Strike configurations have a 45° aiming limitation. Strike configurations have a 30° aiming limitation.

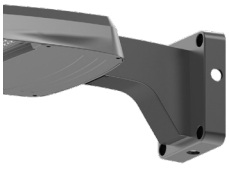




T–TRUNNION

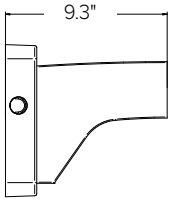
Trunnion for surface and crossarm mounting using (1) 3/4" or (2) 1/2" size through bolts. Micro Strike configurations have a 45° aiming limitation. Strike configurations have a 30° aiming limitation.





WM–WALL MOUNT

Compatible with universal arm mount, adjustable arm mount, and decorative arm mount. The WA option uses the same wall bracket but replaces the decorative arm with an adjustable arm.



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VIPER Area/Site

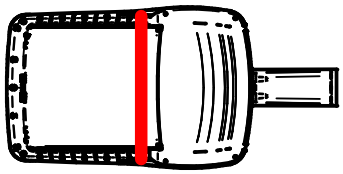
VIPER LUMINAIRE

ADDITIONAL INFORMATION (CONTINUED)

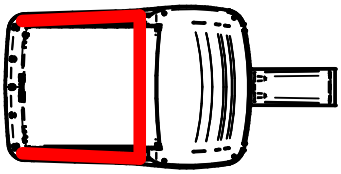
HOUSE SIDE SHIELD FIELD INSTALL ACCESSORIES

HSS has a depth of 5" for all Viper sizes
Not to be used with Occupancy Sensors as the shield may block the light to the sensor.

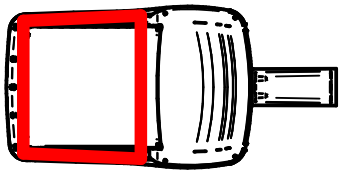
VPR2x HSS-90-B-xx



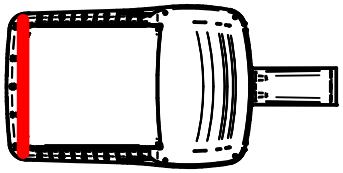
VPR2x HSS-270-BSS-xx



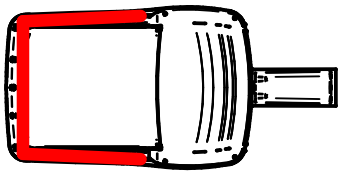
VPR2x HSS-360-xx



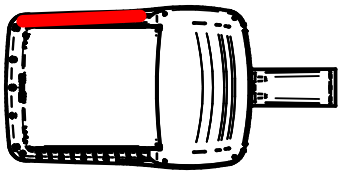
VPR2x HSS-90-F-xx



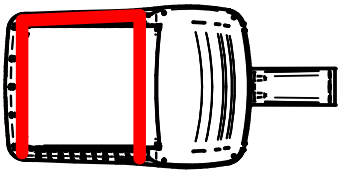
VPR2x HSS-270-FSS-xx



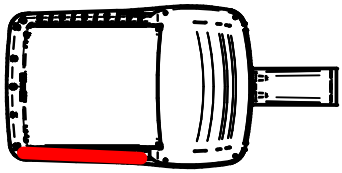
VPR2x HSS-90-S-xx



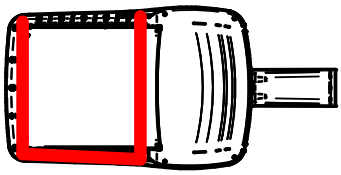
VPR2x HSS-270-FSB-xx



VPR2x HSS-90-S-xx



VPR2x HSS-270-FSB-xx



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ADDITIONAL INFORMATION (CONTINUED)

PROGRAMMED CONTROLS

ADD-AutoDim Timer Based Options

- Light delay options from 1-9 hours after the light is turned on to dim the light by 10-100%. To return the luminaire to its original light level there are dim return options from 1-9 hours after the light has been dimmed previously.

EX: ADD-6-5-R6

ADD Control Options	Configurations Choices	Example Choice Picked
Auto-Dim Options	1-9 Hours	6 - Delay 6 hours
Auto-Dim Brightness	10-100% Brightness	5 - Dim to 50% brightness
Auto-Dim Return	Delay 0-9 Hours	R6 - Return to full output after 6 hours

ADT-AutoDim Time of Day Based Option

- Light delay options from 1AM-9PM after the light is turned on to dim the light by 10-100%. To return the luminaire to its original light level there are dim return options from 1AM-9PM after the light has been dimmed previously.

EX: ADT-6-5-R6

ADD Control Options	Configurations Choices	Example Choice Picked
Auto-Dim Options	12-3 AM and 6-11 PM	6 - Dim at 6PM
Auto-Dim Brightness	10-100% Brightness	5 - Dim to 50%
Auto-Dim Return	12-6 AM and 9-11P	R6 - Return to full output at 6AM

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BANNISTER
ENGINEERING

FLOOD STUDY

FOR

Stone Creek Retail
Located in Rockwall
Rockwall County, Texas
OF
Tributary D of Squabble Creek

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3-15-2022

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1. INTRODUCTION

The proposed commercial development is about 8.6 acres located near the northeast corner of North Goliad Street and East Quail Run Road in the City of Rockwall in Rockwall County, Texas. See the Location Map (Exhibit 1).

Squabble Creek Tributary D runs from east to west through the site. A LOMR was done in August 29, 2014. The LOMR is shown on the Effective FIRM panel dated 9-26-2008 (48397C0030L) is included as Exhibit 2.

The purpose of this submittal is to provide sufficient documentation in accordance with sound engineering standards and practices to demonstrate that the development will not cause any adverse impact in accordance to the City's Squabble Creek Watershed ordinance.

2. HYDROLOGY

2.1.Methodology

The following information about hydrology is not intended to revise discharges used in stream modeling by FEMA. The intent is to demonstrate the development's impact on hydrology. The Squabble Creek Watershed hydrology model and GIS files were provided by the City. The model provided was HEC-HMS V4.2.1. Discrepancies in the drainage boundaries were discovered in and near the site. The drainage boundary east of the site did not match the drainage pattern around the fire station. Also, the drainage boundary did not match the drainage pattern along East Quail Run Road. The hydrology model had the CN for "SQ036" at a developed rate. The drainage areas and CN's were recalculated for the impacted drainage areas "SQ012", "SQ015b", "SQ034e", "SQ034f", and "SQ036". The time of concentration was recalculated for subbasin "SQ036". This is the basis for the pre-project hydrology model. This study will compare the results from the effective/revised existing hydrology to the pre-project and the post-project hydrology. The comparison uses design points from upstream of the site to the very downstream end of the model at Lake Ray Hubbard. This study uses the same HEC-HMS version for consistency. It was not updated to the latest HEC-HMS version. The 5-year (20% annual chance), 10-year (10% annual chance), 25-year (4% annual chance), 50-year (2% annual chance), and 100-year (1% annual chance) conditions were modeled. The post-project 100-year fully developed conditions were modeled to determine fill elevations to provide the required 2' of freeboard. The HEC-HMS files are located on the CD.

2.2.Drainage Basin Characteristics

The drainage basin of Squabble Creek Tributary D at the site (North Goliad Street) is about 135.3 acres. The site is 6% of the contributing area. Normally, this location would be the end of the analysis because the limit of the zone of influence is at the point where the contributing area is less than 10% of the overall area. The Squabble Creek Watershed ordinance requires the analysis to be reviewed all the way to Lake Ray Hubbard. All drainage areas upstream of the site are fully developed. The drainage boundaries mentioned previously were corrected for subbasins "SQ012", "SQ015b", "SQ034e", "SQ034f", and "SQ036". These subbasins are shown on the Pre-Project Drainage Area Map Exhibit 6. The areas and CN's were recalculated. In the proposed conditions the drainage boundary for subbasin "SQ034f" was revised. A land use map is shown on Exhibit 8. The runoff Curve Numbers (CN) were obtained from the City of Rockwall's drainage manual. The CN's were adjusted to conform to AMC-3. The hydrologic soil groups in the drainage

area are mostly D soils with some B soils. A soils map is shown on Exhibit 8. The existing hydrology calculations are shown on Exhibit 7.

The proposed drainage areas were revised by directing 1.72 acres of subbasin "SQ036" to the existing detention pond. The existing detention pond will be expanded which will capture 0.47 acres from subbasin "SQ034f". These two revisions increased subbasin "SQ034e" by 2.19 acres. The proposed drainage area map is included as Exhibit 9. A proposed land use and soils map is shown on Exhibit 11.

2.3.Time of Concentration

The Time of Concentration (T_C) was recalculated for "SQ034e", SQ034f", and for "SQ036", which contains the site. Tc was calculated based on methods outlined in the NCTCOG hydrology manual. The four types of flows that were used in calculating T_C was sheet flow, shallow concentrated flow, pipe flow, and channel flow. The T_C was located where the highest T_C was generated. The T_C paths are shown on Exhibit 6. The formula to calculate T_C for sheet flow uses runoff coefficients for land use. A maximum distance of 100' was used for sheet flow. The formula for calculating average velocity for shallow concentrated flow uses a coefficient of 16.13 for unpaved and 20.33 for paved conditions. Channel flow was estimated at 6 ft/sec. The SCS Unit Hydrograph method requires a Lag Time (T_{lag}). T_{lag} is 60% of T_C. The existing T_C calculation is shown on Exhibit 7.

The existing T_C that travels through the site was modified for conceptual proposed conditions. The travel path, inlet location, and storm pipe location were assumed. The calculation is shown on Exhibit 10.

2.4.Storm Characteristics

This element of the hydrology modeling was not revised from the original method.

2.5.Stream Routing

There are two stream routings that were revised based on the update made to the HEC-RAS model. Reaches "R_SQ015e" and "R_SQ015f". The routing method for these is "Modified Puls". This method requires a floodplain storage-discharge relationship. This is created with the HEC-RAS model. The tables for these two routings are shown on Exhibit 7. The HEC-RAS model is included on the CD.

The development fills a portion of the floodplain. As a result, it decreases floodplain storage. Excavation within the floodplain helps to offset the loss. The routings for reaches "R_SQ015e" and "R_SQ015f" were updated based on the proposed grading within the floodplain. The tables for these two routings are shown on Exhibit 10. The HEC-RAS model is included on the CD.

2.6.Detention

There are numerous detention structures modeled in the hydrology for the Squabble Creek watershed. The Stone Creek Phase 7 subdivision built a large detention pond ("Stone Creek Phase 7") near the site. The existing berm is about 9 feet tall. It has a maximum volume of 22.15 acre-feet at the top of the berm. This detention pond will be expanded for the proposed development. The modeling of the existing pond was reviewed. It was determined that the volume of the pond needed to be more accurately measured. The elevation-area table was developed from the construction plans of the pond. The calculation is shown on Exhibit 7. The applicable sheet is included on the CD. The pond

volume calculations were not found. The calculation was recreated by tracing contours from the grading plan.

The development is including the expansion of the existing detention pond to help offset negative impacts. The expansion will increase the volume to 24.42 acre-ft. The height of the existing berm will not be increased. Even though the height of the dam is above the 6-foot threshold for dam regulation, the volume is below the 50 acre-ft threshold for dam regulation. An emergency spillway will be added to the berm at 500.0. The outlet structure is to remain the same. A basic grading plan is included as Exhibit 20. More detailed information for the grading and the detention pond will be shown on the civil plans. Table 1 shows the results of the proposed detention pond which demonstrates a freeboard in excess of 2 feet as measured from the top of the berm.

TABLE 1

PROPOSED DETENTION POND SUMMARY

Storm Event	Discharge In	Top of Berm	Max. Storage	Discharge Out	Peak Elevation	Utilized Storage	Freeboard
	(cfs)		(ac.ft.)	(cfs)		(ac.ft.)	(ft)
100-YEAR	419.8	502	24.42	127.9	499.66	15.21	2.34
25-YEAR	327.8	502	24.42	70.2	498.83	12.21	3.17
10-YEAR	278.9	502	24.42	64.8	498.15	9.87	3.85
5-YEAR	230.3	502	24.42	58.8	497.47	7.62	4.53

2.7.Results

Table 2 demonstrates the results of the revisions made to the MDS hydrology model by the pre-project model. Tributary D had a maximum increase of 11.0 cfs (2.3%). The maximum decrease in Tributary D is 2.1 cfs (0.1%). There were no increases in Squabble creek. Squabble Creek had a maximum decrease of 9.0 cfs (0.3%)

TABLE 2

MDS/PRE-PROJECT 100-YEAR DISCHARGE SUMMARY

MDS		PRE-PROJECT		
DESIGN POINT	DISCHARGE	DESIGN POINT	DISCHARGE	DIFFERENCE
	(cfs)		(cfs)	(cfs)
SQ012	169.0	SQ012	164.3	-4.7
SQ015b	35.2	SQ015b	34.5	-0.7
SQ034a	203.9	SQ034a	203.9	0.0
SQ034b	236.7	SQ034b	236.7	0.0
SQ034c	83.9	SQ034c	83.9	0.0
SQ034d	103.9	SQ034d	103.9	0.0
SQ034e	380.9	SQ034e	403.8	22.9
SQ034f	67.8	SQ034f	52.9	-14.9
SQ034g	92.4	SQ034g	92.4	0.0
SQ036	86.4	SQ036	77.8	-8.6
Stone Creek Phase 7	130.3	Stone Creek Phase 7	136.3	6.0
J_SQ008	509.7	J_SQ008	508.9	-0.8
J_SQ009	531.5	J_SQ009	530.7	-0.8
J_SQ010	1125.5	J_SQ010	1125.2	-0.3
J_SQ021	2377.7	J_SQ021	2376.1	-1.6
J_SQ023	2429.2	J_SQ023	2427.6	-1.6
J_SQ024	2425.0	J_SQ024	2423.0	-2.0
J_SQ025	2680.3	J_SQ025	2678.2	-2.1
J_SQ026c	447.8	J_SQ026c	447.8	0.0
J_SQ026d	475.0	J_SQ026d	486.0	11.0
J_SQ026e	474.1	J_SQ026e	477.9	3.8
J_SQ026f	472.4	J_SQ026f	477.1	4.7
J_SQ026g	431.5	J_SQ026g	430.7	-0.8
J_SQ027	436.5	J_SQ027	435.4	-1.1
J_SQ029	595.5	J_SQ029	594.4	-1.1
J_SQ030	3206.7	J_SQ030	3206.1	-0.6
J_SQ031	2776.8	J_SQ031	2770.9	-5.9
J_SQ034	3032.3	J_SQ034	3023.6	-8.7
J_SQ035	2999.3	J_SQ035	2992.0	-7.3
J_SQ037	3006.3	J_SQ037	2997.4	-8.9
J_SQ039	3080.6	J_SQ039	3071.6	-9.0
J_SQ040	3188.2	J_SQ040	3185.4	-2.8
J_SQ041	3529.5	J_SQ041	3525.4	-4.1

Initially, the development had a negative impact on discharges. About 95% of the impact is due to filling within the floodplain thereby reducing floodplain storage. Two actions were

done to reverse the negative impacts. One action that was done was to expand the existing Stone Creek Phase 7 detention pond and diverting 1.72 acres from the site to the pond. The second action that was done was to excavate within the floodplain to increase floodplain storage. The results are shown on Table 3. There is an increase in flow of 16.0 cfs from subbasin "SQ034e" which drains to the Stone Creek Phase 7 detention pond, but the detention pond reduces the discharge by 8.4 cfs (6.2%) compared to the pre-project conditions. Subbasin "SQ036" which contains the site has a decrease in discharge of 6.1 cfs but at the point where flows are joined in Tributary D and leaves the property ("J_SQ026g") the discharge is reduced by 7.4 cfs (1.7%). Tributary D had a maximum decrease of 11.4 cfs (2.3%). There are no increases in discharge in Tributary D. The greatest reduction in discharge in Squabble Creek is 19.8 cfs (0.6%). There are no increases in discharge in Squabble Creek. See Exhibit 10 for detention results.

TABLE 3

PRE-PROJECT/POST-PROJECT 100-YEAR COMPARISON					
PRE-PROJECT		POST-PROJECT			MDS
DESIGN POINT	DISCHARGE (cfs)	DESIGN POINT	DISCHARGE (cfs)	DIFFERENCE (cfs)	DISCHARGE
SQ034e	403.8	SQ034e	419.8	16.0	380.9
SQ034f	52.9	SQ034f	49.4	-3.5	67.8
SQ036	77.8	SQ036	71.7	-6.1	86.4
Stone Creek Phase 7	136.3	Stone Creek Phase 7	127.9	-8.4	130.3
J_SQ026d	486.0	J_SQ026d	474.6	-11.4	475.0
J_SQ026e	477.9	J_SQ026e	469.0	-8.9	474.1
J_SQ026f	477.1	J_SQ026f	473.6	-3.5	472.4
J_SQ026g	430.7	J_SQ026g	423.3	-7.4	431.5
J_SQ027	435.4	J_SQ027	428.0	-7.4	436.5
J_SQ029	594.4	J_SQ029	586.9	-7.5	595.5
J_SQ030	3206.1	J_SQ030	3186.3	-19.8	3206.7
J_SQ031	2770.9	J_SQ031	2757.6	-13.3	2776.8
J_SQ034	3023.6	J_SQ034	3010.4	-13.2	3032.3
J_SQ035	2992.0	J_SQ035	2978.7	-13.3	2999.3
J_SQ037	2997.4	J_SQ037	2985.8	-11.6	3006.3
J_SQ039	3071.6	J_SQ039	3060.1	-11.5	3080.6
J_SQ040	3185.4	J_SQ040	3185.4	0.0	3188.2
J_SQ041	3525.4	J_SQ041	3525.4	0.0	3529.5

Table 4 shows the comparison between Stone Creek Phase 7 hydrology and the post-project hydrology.

TABLE 4

STONE CREEK PH 7		POST-PROJECT		
DESIGN POINT	DISCHARGE	DESIGN POINT	DISCHARGE	DIFFERENCE
	(cfs)		(cfs)	(cfs)
Subbasin 6	396.7	SQ034e	419.8	23.1
Subbasin 8	71.0	SQ034f	49.4	-21.6
Subbasin 7	89.8	SQ036	71.7	-18.1
Reservoir-2 FD	131.8	Stone Creek Phase 7	127.9	-3.9
Junction 2A	478.4	J_SQ026d	474.6	-3.8
Junction 3	477.5	J_SQ026e	469.0	-8.5
Junction 4	475.5	J_SQ026f	473.6	-1.9
Junction 5	433.0	J_SQ026g	423.3	-9.7

3. HYDRAULICS

3.1.Effective Model

The FEMA effective hydraulic model was requested from FEMA. The model is HEC-RAS 4.1.0 from the Stone Creek Phase 4 LOMR dated 8-29-2014. The FEMA 100-year water surface elevations are shown on Table 5. The effective 100-year floodplain and cross sections are shown on Exhibit 12. The output is included as Exhibit 4. The stream profile is included as Exhibit 5. The HEC-RAS model is found on the CD. The plan name is "Effective".

The MDS hydraulic model from the Master Drainage Study was obtained from the City. The version used was 5.0.7. The basis of the model is the Stone Creek Phase 4 LOMR. The City has maintained and updated the model separately from FEMA's model. As a result, certain areas are more up-to-date. This model will not be sent to FEMA for their review as it would entail revisions well beyond the impact of the development. The MDS 100-year water surface elevations are shown on Table 6. The HEC-RAS model is found on the CD. The plan name is "Revised Existing".

3.2.Pre-Project Model

The FEMA effective model was revised and ran with the same HEC-RAS version to eliminate any differences of results between versions. The plan name is "Pre-Project".

The entire property was surveyed by Corwin Engineering in 2016 for topography which includes the channel. Bannister Engineering surveyed sections at the channel in August 2021. Cross sections 1202 to 1622 were updated with the survey. Ineffective flow limits were added to the upstream side of North Goliad Street at cross section 1202. No other revisions were made to the modeling of North Goliad Street. Cross section 1538 was removed and was replace with cross sections 1513 and 1563. The n-values were not revised. The pre-project 100-year floodplain was mapped and shown on Exhibit 12. The maximum increase was 0.06 feet located just upstream of the site. The maximum decrease was 0.01 feet located on the upstream side of North Goliad Street.

The MDS model was revised and ran with the same HEC-RAS version to eliminate any differenced of results between versions. The 100-year (1% annual chance) fully developed discharges were used in the model. The plan name is "Pre-Project".

The same revisions that were done to the FEMA effective model was done to the MDS model. Plus, corrections were made to North Goliad Street. The downstream side had been updated from the FEMA model which introduced some errors that the FEMA model does not have. The stationing of the weir no longer matched the stationing of cross section 1076. The stationing of the downstream weir was adjusted to be consistent with the upstream weir. The downstream culvert stationing was adjusted so that it is now located within the channel. The distance from the "deck" to the upstream cross section was corrected. Discharges were updated based on the results of the pre-project hydrology model. The discharges for the entire hydraulic model was reviewed and revised where deemed appropriate. The pre-project drainage area map shows the discharge locations that were applied to the hydraulic model. The MDS pre-project 100-year floodplain was mapped and shown on Exhibit 12. The maximum increase was 0.35 feet located on the upstream side of Pecan Valley Drive. This was due to correcting the discharge. The maximum decrease was 0.27 feet located upstream of Harvard Drive. This was due to correcting the discharge. The plan name is "Pre-Project".

The FEMA and MDS 100-year water surface elevations are shown on Table 5 and Table 6, respectively. The location of the cross sections are shown on Exhibit 12. The output is included as Exhibit 13. The stream profile and cross sections are included as Exhibit 14 and Exhibit 15, respectively.

3.3.Post-Project Model

The pre-project FEMA model and pre-project MDS model was modified in the same way with the exception to discharges to create the post-project model. The proposed changes to the model are as follows:

- Fill was added to cross sections 1202 to 1622. The n-value for the fill slope was changed to 0.045.
- An excavated area was added to cross sections 1422 to 1622. The purpose of this is for creating additional floodplain storage to help offset the reduction in floodplain storage caused by the fill.
- MDS only: The hydrology was updated for post-project conditions.

The post-project FEMA model showed no increases in the water surface elevations compared to the pre-project FEMA model. The maximum decrease is 0.03 feet. The plan name is "Post-Project".

The MDS post-project model showed a maximum increase was 0.02 feet located at cross section 2028. This is due to the reduction of discharge at a cross section with a depressed water surface elevation. The plan name is "Post-Project".

The FEMA and MDS 100-year water surface elevations are shown on Table 5 and Table 6, respectively. The modifications, location of the cross sections, and the FEMA and MDS proposed floodplains are shown on Exhibit 16. The output is included as Exhibit 17. The stream profile is included as Exhibit18. The cross sections are included as Exhibit 19.

The Erosion Hazard Setback is a requirement within the City. In general, it is determined by locating the toe of the channel and extending a line up at a slope of 4:1 until it daylights, plus

15 feet beyond. In this situation, there is not a well defined channel. As a result, the toe of the channel is not apparent on some of the cross sections. In this situation, the 4:1 slope is extended up from the flow line until it intersects with the fully developed 100-year floodplain. The drainage easement that contains the Erosion Hazard Setback was determined by offsetting the previously mentioned floodplain by 10 feet. This was all done in accordance to "Scenario 2 (Erosion Hazard Setback within Floodplain)" that is found in the Standards of Design and Construction for the City of Rockwall dated October 2019. The Erosion Hazard Setback and Drainage Easement are shown on Exhibits 16 and 20. The development of these are graphically shown on the Post-Project Cross Section, Exhibit 19.

3.4.Results

The hydraulic modeling results shown in Table 6 show a rise in water surface elevation at cross section 2028. The 0.02' rise is within the HOA lot. Fill elevations and finished floor elevations will be based on the proposed 100-year water surface elevations which uses fully developed discharges.

4. CONCLUSION

This study shows that this project will increase the 100-year water surface elevation which is located on the HOA lot. Permission can be obtained for this rise. Permissions will be obtained for offsite grading. We do not believe this project will hinder any potential development on properties adjacent to this development or downstream of the project.

The minimum fill elevations shall be 2 foot above the 100-year water surface elevations. The minimum finished floor elevations shall be a minimum 2' above the 100-year water surface elevations.

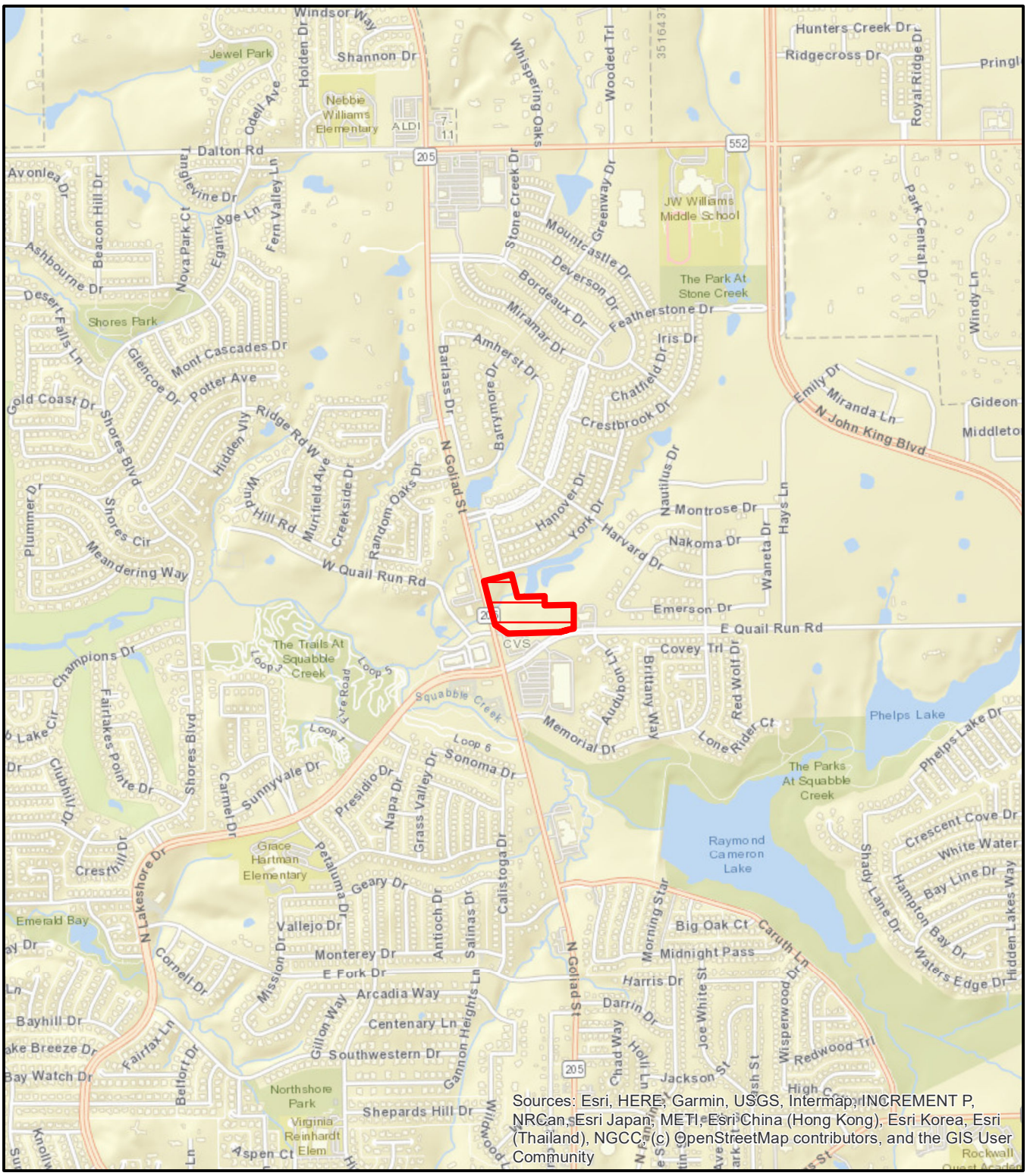
When there is sufficient grading completed a LOMR can be provided using FEMA's effective model.

TABLE 5

FEMA WATER SURFACE COMPARISON							
Effective		Pre-Project			Post-Project		
STATION	W.S. Elev.	STATION	W.S. Elev.	Difference	STATION	W.S. Elev.	Difference
1973	492.07	1973	492.07	0.00	1973	492.07	0.00
1917	491.74	1917	491.74	0.00	1917	491.74	0.00
1716	480.54	1716	480.60	0.06	1716	480.60	0.00
SITE							
1622	480.38	1622	480.38	0.00	1622	480.35	-0.03
		1563	480.36		1563	480.34	-0.02
1538	480.35						
		1513	480.35		1513	480.34	-0.01
1422	480.32	1422	480.33	0.01	1422	480.33	0.00
					1328	480.33	
1284	480.32	1284	480.32	0.00	1284	480.32	0.00
1202	480.31	1202	480.30	-0.01	1202	480.30	0.00
SITE							
N. Goliad St							
1076	474.20	1076	474.20	0.00	1076	474.20	0.00
1026	471.40	1026	471.40	0.00	1026	471.40	0.00

TABLE 6

MDS WATER SURFACE COMPARISON										
Effective			Pre-Project				Post-Project			
STATION	Q	W.S. Elev.	STATION	Q	W.S. Elev.	Difference	STATION	Q	W.S. Elev.	Difference
4830	441	521.17	4830	441	521.17	0.00	4830	441	521.17	0.00
4587	441	519.73	4587	441	519.73	0.00	4587	441	519.73	0.00
4437	386	519.73	4437	378	519.73	0.00	4437	378	519.73	0.00
Pond Culvert										
4291	386	513.12	4291	378	513.11	-0.01	4291	378	513.11	0.00
4188	386	511.11	4188	378	511.11	0.00	4188	378	511.11	0.00
3967	386	505.62	3967	378	505.59	-0.03	3967	378	505.59	0.00
3831	386	503.30	3831	378	503.29	-0.01	3831	378	503.29	0.00
3669	386	501.84	3669	386	501.84	0.00	3669	386	501.84	0.00
3525	386	500.23	3525	386	500.08	-0.15	3525	386	500.08	0.00
3310	448	498.42	3310	386	498.15	-0.27	3310	386	498.15	0.00
3134	448	496.63	3134	386	496.48	-0.15	3134	386	496.48	0.00
2997	475	494.51	2997	448	494.40	-0.11	2997	448	494.40	0.00
Harvard Dr										
2917	475	493.61	2917	448	493.56	-0.05	2917	448	493.56	0.00
2800	475	493.55	2800	448	493.54	-0.01	2800	448	493.51	-0.03
2677	475	493.09	2677	448	493.16	0.07	2677	448	493.11	-0.05
2550	475	493.09	2550	448	493.16	0.07	2550	448	493.10	-0.06
2396	472	493.04	2396	486	493.11	0.07	2396	475	493.06	-0.05
2200	472	492.92	2200	486	492.99	0.07	2200	475	492.94	-0.05
2028	472	491.59	2028	486	491.55	-0.04	2028	475	491.57	0.02
1973	472	492.06	1973	486	492.06	0.00	1973	475	492.05	-0.01
1917	472	491.74	1917	478	491.74	0.00	1917	469	491.74	0.00
1716	472	480.56	1716	478	480.55	-0.01	1716	469	480.42	-0.13
SITE										
1622	432	480.42	1622	477	480.26	-0.16	1622	474	480.01	-0.25
			1563	477	480.24		1563	474	480.00	-0.24
1538	432	480.38								
			1513	477	480.22		1513	474	479.99	-0.23
1422	432	480.36	1422	477	480.20	-0.16	1422	474	479.98	-0.22
							1328	474	479.97	
1284	432	480.35	1284	477	480.19	-0.16	1284	474	479.97	-0.22
1202	437	480.35	1202	431	480.16	-0.19	1202	423	479.94	-0.22
SITE										
N. Goliad St										
1076	437	474.19	1076	431	474.14	-0.05	1076	423	474.08	-0.06
1026	437	471.30	1026	431	471.28	-0.02	1026	423	471.25	-0.03
981	437	470.98	981	431	470.96	-0.02	981	423	470.93	-0.03
918	437	469.61	918	431	469.58	-0.03	918	423	469.55	-0.03
833	437	467.72	833	435	467.71	-0.01	833	428	467.68	-0.03
W. Quail Run Rd										
802	437	467.67	802	435	467.66	-0.01	802	428	467.64	-0.02
726	437	467.10	726	435	467.09	-0.01	726	428	467.07	-0.02
635	437	465.93	635	435	465.96	0.03	635	428	465.94	-0.02
619	437	465.27	619	435	465.47	0.20	619	428	465.45	-0.02
495	437	461.68	495	594	462.03	0.35	495	587	462.02	-0.01
Pecan Valley Dr										
393	437	461.26	393	594	461.51	0.25	393	587	461.50	-0.01



Legend

Site

STONE CREEK RETAIL

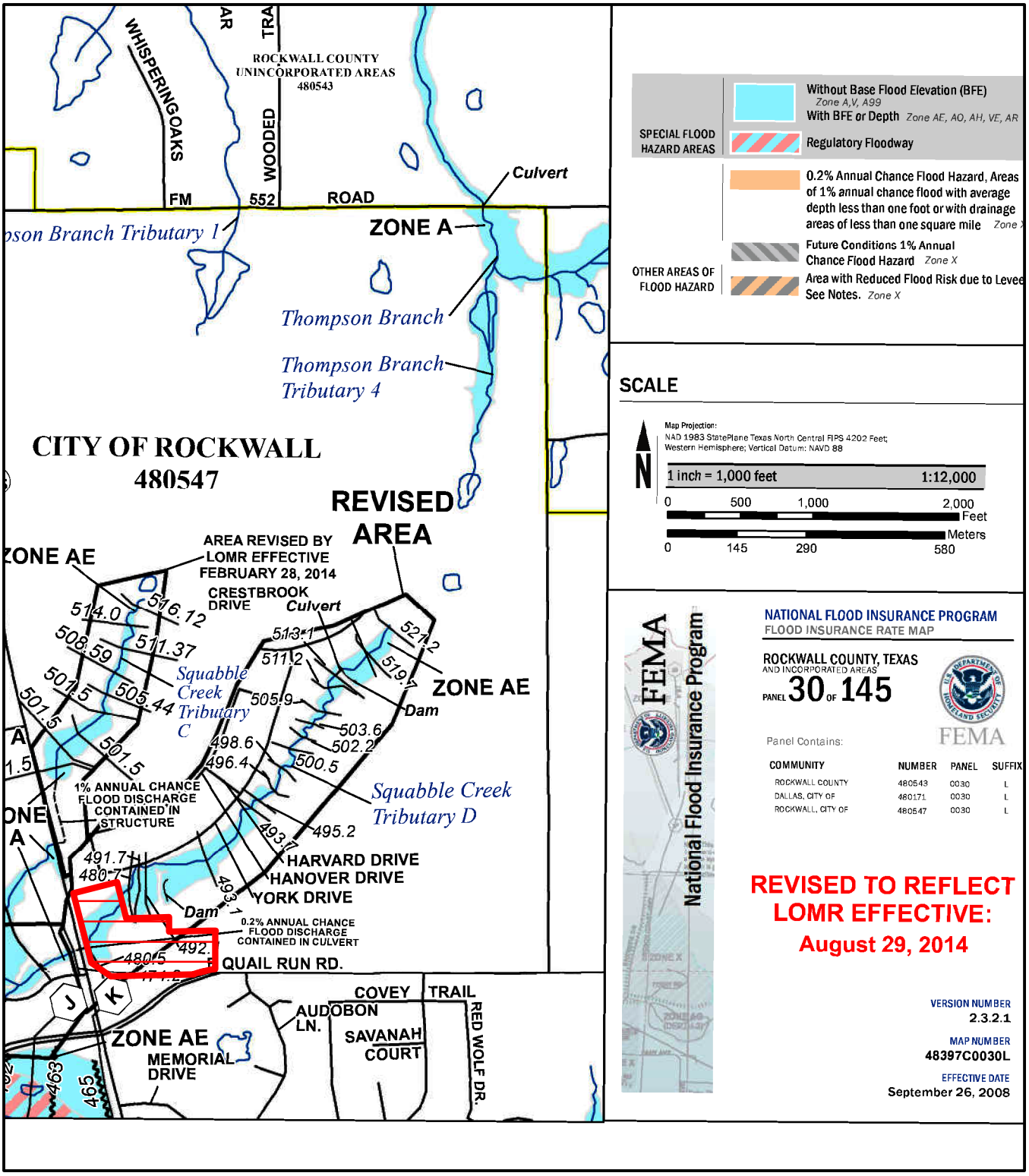
BANNISTER ENGINEERING

1 in = 0.3 miles

0 0.075 0.15 0.3 Miles

LOCATION MAP

EXHIBIT 1



Legend

Site

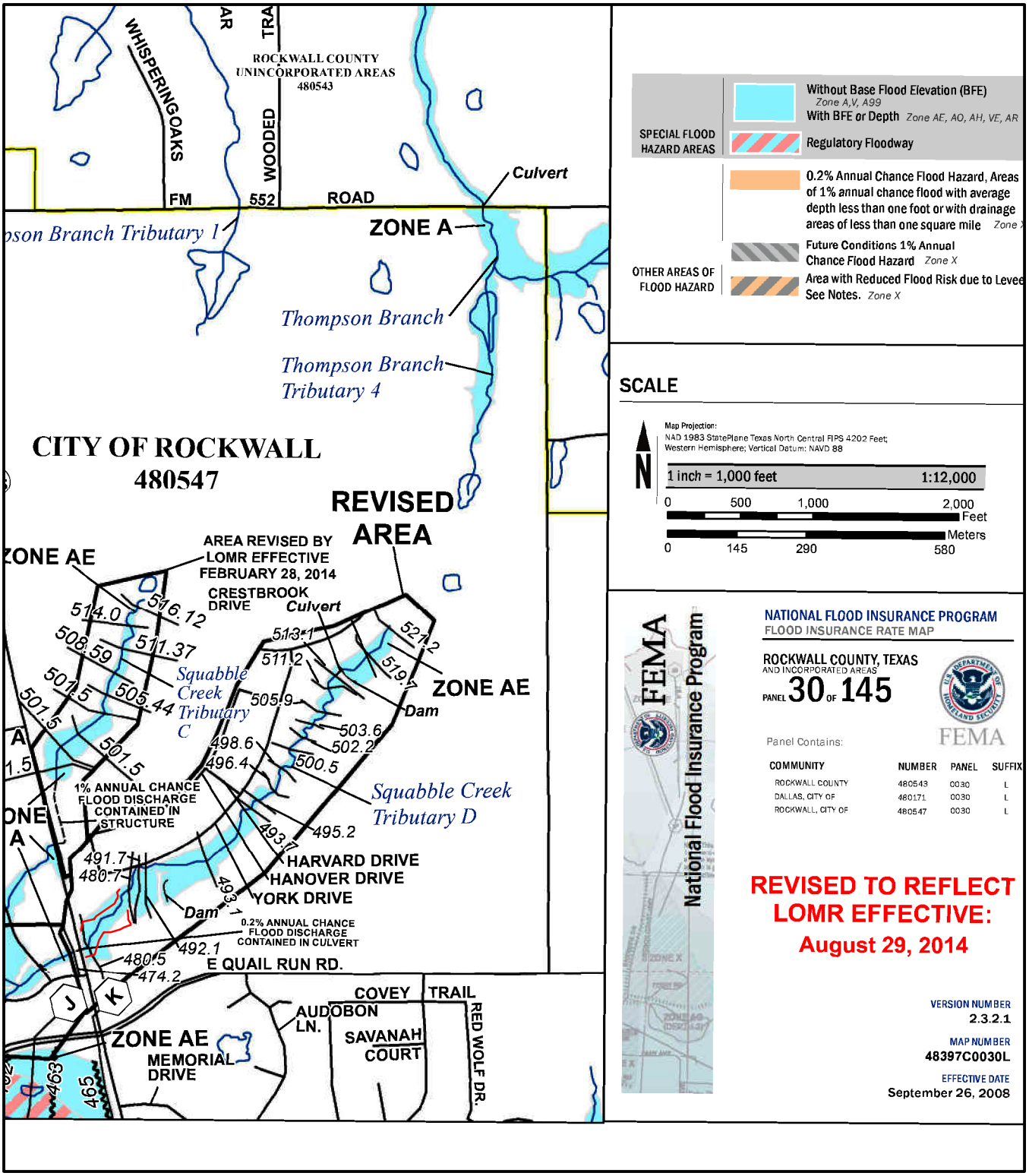
STONE CREEK RETAIL

BANNISTER ENGINEERING

1 in = 1,000 feet

0 250 500 1,000 Feet

EFFECTIVE FIRM **EXHIBIT 2**



Legend

100-YR Revised FP

STONE CREEK RETAIL

BANNISTER ENGINEERING

N

1 in = 1,000 feet

0 250 500 1,000 Feet

ANNOTATED FIRM **EXHIBIT 3**

HEC-RAS Plan: Post-Project River: RIVER-1 Reach: Reach-1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	4830	10 Year	282.80	519.35	520.87	520.87	521.29	0.025442	5.22	54.13	65.25	1.01
Reach-1	4830	50 Year	380.30	519.35	521.06	521.06	521.56	0.024427	5.65	67.39	72.18	1.02
Reach-1	4830	100 Year	428.80	519.35	521.15	521.15	521.68	0.023297	5.84	73.74	75.26	1.01
Reach-1	4830	500 Year	532.40	519.35	521.32	521.32	521.92	0.021548	6.21	87.15	81.38	0.99
Reach-1	4587	10 Year	282.80	513.00	518.86		518.87	0.000044	0.69	430.47	117.28	0.06
Reach-1	4587	50 Year	380.30	513.00	519.62		519.63	0.000047	0.78	525.32	135.41	0.06
Reach-1	4587	100 Year	428.80	513.00	519.73		519.74	0.000055	0.86	540.77	138.23	0.06
Reach-1	4587	500 Year	532.40	513.00	519.89		519.91	0.000076	1.03	563.88	142.35	0.08
Reach-1	4437	10 Year	221.00	513.00	518.87	513.47	518.87	0.000005	0.24	926.41	201.01	0.02
Reach-1	4437	50 Year	335.20	513.00	519.62	513.61	519.62	0.000008	0.31	1083.55	217.60	0.02
Reach-1	4437	100 Year	390.40	513.00	519.73	513.68	519.73	0.000010	0.35	1108.31	220.27	0.03
Reach-1	4437	500 Year	493.30	513.00	519.90	513.80	519.90	0.000014	0.43	1145.06	224.17	0.03
Reach-1	4338		Culvert									
Reach-1	4291	10 Year	272.80	510.40	512.89	512.89	513.25	0.028885	5.18	66.91	100.17	0.83
Reach-1	4291	50 Year	409.00	510.40	513.15	513.15	513.54	0.028737	5.59	95.01	113.44	0.84
Reach-1	4291	100 Year	479.10	510.40	513.25	513.25	513.66	0.029747	5.86	105.98	116.21	0.87
Reach-1	4291	500 Year	623.10	510.40	513.41	513.41	513.90	0.032533	6.42	124.98	120.85	0.92
Reach-1	4188	10 Year	272.80	508.32	510.93	510.68	511.05	0.017514	3.45	106.19	127.12	0.47
Reach-1	4188	50 Year	409.00	508.32	511.15	510.83	511.31	0.019117	3.91	134.76	130.67	0.50
Reach-1	4188	100 Year	479.10	508.32	511.24	510.92	511.42	0.020174	4.15	146.88	132.32	0.52
Reach-1	4188	500 Year	623.10	508.32	511.41	511.06	511.63	0.021960	4.57	169.63	135.38	0.55
Reach-1	3967	10 Year	272.80	501.10	505.24	505.24	505.74	0.036683	6.03	55.71	58.76	0.68
Reach-1	3967	50 Year	409.00	501.10	505.69	505.59	506.16	0.031380	6.25	85.16	73.06	0.65
Reach-1	3967	100 Year	479.10	501.10	505.89	505.74	506.34	0.028808	6.26	100.58	79.53	0.63
Reach-1	3967	500 Year	623.10	501.10	506.23		506.67	0.025430	6.31	128.62	85.54	0.60
Reach-1	3831	10 Year	272.80	498.10	502.86		503.01	0.011138	3.28	88.38	45.66	0.38
Reach-1	3831	50 Year	409.00	498.10	503.37		503.57	0.012865	3.81	114.80	55.84	0.41
Reach-1	3831	100 Year	479.10	498.10	503.58		503.81	0.013304	4.07	126.49	58.50	0.43
Reach-1	3831	500 Year	623.10	498.10	503.96		504.24	0.013766	4.51	150.16	63.54	0.44
Reach-1	3669	10 Year	272.80	496.18	501.34		501.49	0.009474	3.50	97.14	66.90	0.36

HEC-RAS Plan: Post-Project River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	3669	50 Year	409.00	496.18	501.93		502.08	0.008351	3.54	138.10	71.48	0.34
Reach-1	3669	100 Year	479.10	496.18	502.19		502.34	0.007954	3.61	156.49	74.02	0.34
Reach-1	3669	500 Year	623.10	496.18	502.64		502.81	0.007470	3.79	191.09	78.93	0.34
Reach-1	3525	10 Year	272.80	495.50	499.43		499.78	0.021679	4.75	58.19	30.05	0.56
Reach-1	3525	50 Year	409.00	495.50	500.17		500.57	0.019240	5.14	84.12	40.85	0.54
Reach-1	3525	100 Year	479.10	495.50	500.48		500.89	0.018499	5.30	97.52	46.09	0.54
Reach-1	3525	500 Year	623.10	495.50	501.03		501.46	0.017060	5.51	125.54	55.36	0.53
Reach-1	3310	10 Year	272.80	492.48	497.61		497.71	0.005232	2.53	107.87	42.71	0.28
Reach-1	3310	50 Year	409.00	492.48	498.32		498.46	0.005731	2.91	140.53	49.72	0.30
Reach-1	3310	100 Year	479.10	492.48	498.62		498.77	0.005955	3.09	155.64	53.10	0.31
Reach-1	3310	500 Year	623.10	492.48	499.13		499.31	0.006414	3.42	184.32	59.50	0.33
Reach-1	3134	10 Year	272.80	491.51	495.61		495.98	0.023895	4.98	58.90	36.49	0.58
Reach-1	3134	50 Year	409.00	491.51	496.17		496.61	0.024250	5.57	81.76	45.51	0.60
Reach-1	3134	100 Year	479.10	491.51	496.42		496.88	0.024163	5.79	93.28	49.58	0.60
Reach-1	3134	500 Year	623.10	491.51	496.87		497.37	0.023271	6.08	117.44	57.20	0.60
Reach-1	2997	10 Year	303.70	491.25	494.56		494.64	0.004711	2.37	138.05	74.88	0.27
Reach-1	2997	50 Year	452.40	491.25	495.04		495.14	0.005251	2.81	174.98	81.53	0.29
Reach-1	2997	100 Year	530.10	491.25	495.24		495.37	0.005483	3.01	192.10	84.62	0.30
Reach-1	2997	500 Year	691.20	491.25	495.56		495.72	0.006290	3.44	220.04	89.43	0.33
Reach-1	2917	10 Year	303.70	491.50	493.20	493.20	493.72	0.062827	6.20	55.28	55.23	0.91
Reach-1	2917	50 Year	452.40	491.50	493.55	493.55	494.16	0.058026	6.86	75.79	63.63	0.90
Reach-1	2917	100 Year	530.10	491.50	493.70	493.70	494.36	0.056110	7.14	86.06	67.44	0.90
Reach-1	2917	500 Year	691.20	491.50	494.20		494.75	0.036216	6.67	122.54	79.52	0.75
Reach-1	2800	10 Year	303.70	490.60	492.98		493.00	0.001201	1.24	250.40	138.69	0.16
Reach-1	2800	50 Year	452.40	490.60	493.42		493.45	0.001325	1.49	312.59	144.40	0.17
Reach-1	2800	100 Year	530.10	490.60	493.65		493.69	0.001313	1.58	347.06	147.47	0.17
Reach-1	2800	500 Year	691.20	490.60	494.14		494.18	0.001236	1.72	419.93	153.76	0.17
Reach-1	2677	10 Year	303.70	490.30	492.21	492.15	492.55	0.032671	5.55	73.29	86.01	0.78
Reach-1	2677	50 Year	452.40	490.30	492.85		493.05	0.013683	4.51	135.96	110.28	0.54
Reach-1	2677	100 Year	530.10	490.30	493.15		493.33	0.009900	4.19	171.01	119.22	0.47
Reach-1	2677	500 Year	691.20	490.30	493.74		493.88	0.005963	3.74	244.98	131.60	0.37

HEC-RAS Plan: Post-Project River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	2550	10 Year	303.70	489.63	492.32		492.34	0.000270	1.16	303.29	144.05	0.13
Reach-1	2550	50 Year	452.40	489.63	492.86		492.89	0.000305	1.39	384.05	155.11	0.14
Reach-1	2550	100 Year	530.10	489.63	493.14		493.17	0.000306	1.48	429.02	161.23	0.14
Reach-1	2550	500 Year	691.20	489.63	493.72		493.75	0.000297	1.61	525.05	174.12	0.14
Reach-1	2396	10 Year	270.70	489.63	492.28		492.30	0.000248	1.05	270.77	124.71	0.12
Reach-1	2396	50 Year	416.40	489.63	492.81		492.84	0.000306	1.31	339.70	134.32	0.14
Reach-1	2396	100 Year	484.70	489.63	493.10		493.13	0.000303	1.38	382.92	227.01	0.14
Reach-1	2396	500 Year	628.80	489.63	493.68		493.71	0.000268	1.45	517.24	237.64	0.13
Reach-1	2200	10 Year	270.70	489.63	492.19		492.23	0.000539	1.49	183.10	82.84	0.17
Reach-1	2200	50 Year	416.40	489.63	492.70		492.75	0.000670	1.87	225.78	86.47	0.20
Reach-1	2200	100 Year	484.70	489.63	492.98		493.04	0.000663	1.97	250.48	88.51	0.20
Reach-1	2200	500 Year	628.80	489.63	493.56		493.63	0.000616	2.11	326.36	240.58	0.20
Reach-1	2028	10 Year	270.70	487.50	491.66		491.96	0.013208	4.35	62.34	28.40	0.52
Reach-1	2028	50 Year	416.40	487.50	491.65		492.35	0.031961	6.74	61.86	28.33	0.80
Reach-1	2028	100 Year	484.70	487.50	491.58	491.54	492.60	0.047555	8.09	59.92	28.06	0.98
Reach-1	2028	500 Year	628.80	487.50	491.96	491.96	493.18	0.049168	8.89	70.78	29.53	1.01
Reach-1	1973	10 Year	270.70	488.58	491.81		491.81	0.000014	0.30	908.58	290.49	0.03
Reach-1	1973	50 Year	416.40	488.58	491.99		491.99	0.000028	0.44	961.51	291.76	0.04
Reach-1	1973	100 Year	484.70	488.58	492.07		492.08	0.000034	0.50	986.86	292.53	0.05
Reach-1	1973	500 Year	628.80	488.58	492.21		492.22	0.000051	0.62	1027.78	293.77	0.06
Reach-1	1917	10 Year	270.70	489.00	491.58	491.58	491.78	0.026535	5.28	98.52	218.46	0.74
Reach-1	1917	50 Year	416.40	489.00	491.72	491.72	491.96	0.029801	5.93	131.47	239.74	0.80
Reach-1	1917	100 Year	484.70	489.00	491.74	491.74	492.04	0.037775	6.71	134.85	241.82	0.90
Reach-1	1917	500 Year	628.80	489.00	491.90	491.90	492.18	0.033371	6.69	177.20	287.74	0.86
Reach-1	1716	10 Year	270.70	478.80	479.89		480.01	0.021283	2.73	99.12	119.64	0.53
Reach-1	1716	50 Year	416.40	478.80	479.89		480.16	0.051125	4.22	98.62	119.47	0.82
Reach-1	1716	100 Year	484.70	478.80	480.54		480.65	0.009738	2.68	183.69	140.09	0.39
Reach-1	1716	500 Year	628.80	478.80	481.81		481.85	0.001752	1.73	383.86	173.48	0.18
Reach-1	1622	10 Year	279.70	476.05	478.09		478.26	0.017709	3.55	93.08	92.02	0.50
Reach-1	1622	50 Year	391.30	476.05	479.28		479.34	0.003122	2.17	216.48	114.51	0.23

HEC-RAS Plan: Post-Project River: RIVER-1 Reach: Reach-1 (Continued)

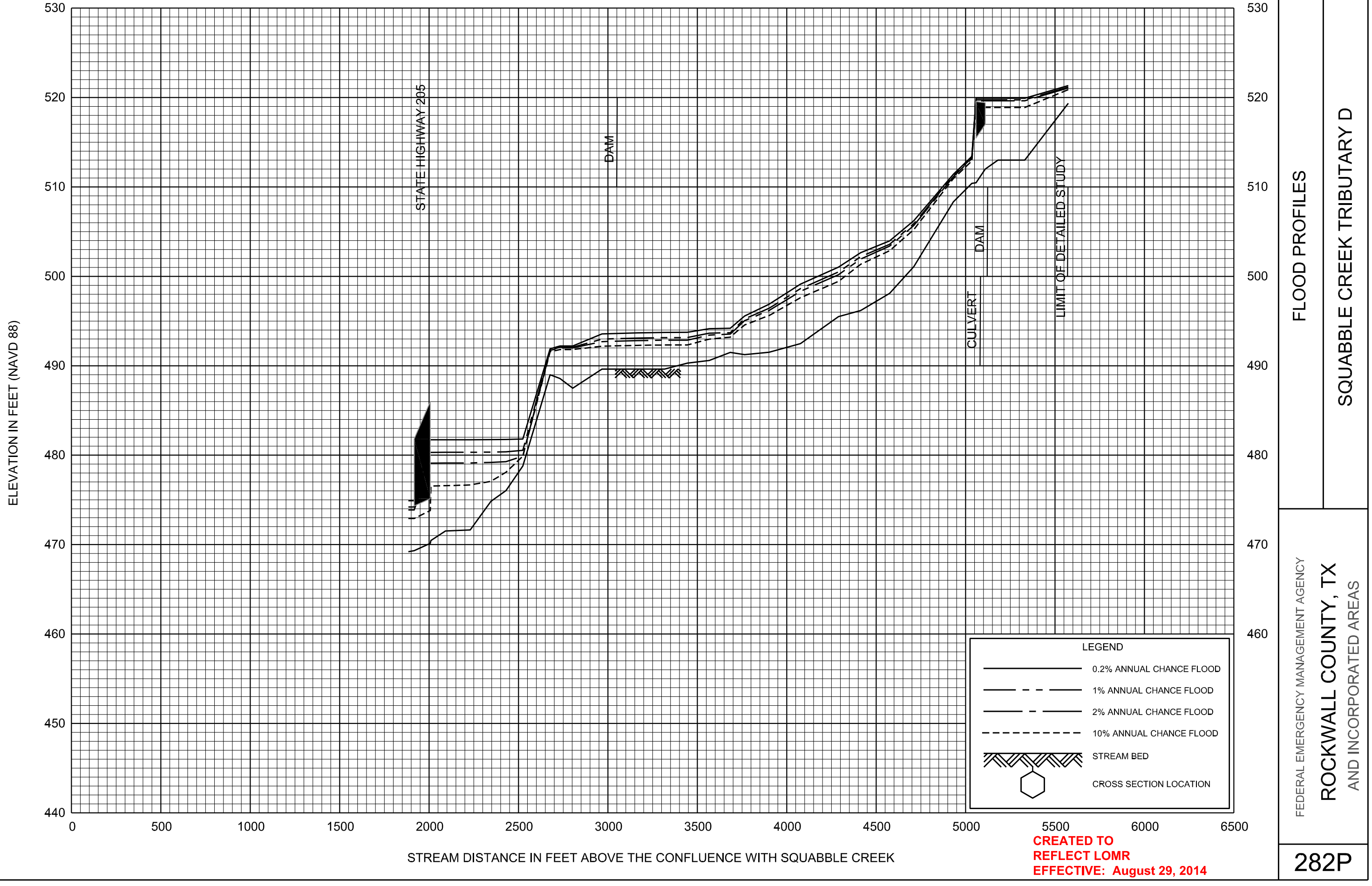
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1622	100 Year	435.70	476.05	480.38		480.41	0.000947	1.50	353.53	133.91	0.13
Reach-1	1622	500 Year	551.50	476.05	481.76		481.77	0.000428	1.23	554.14	158.60	0.10
Reach-1	1538	10 Year	279.70	474.84	477.08		477.18	0.009658	2.72	110.16	84.08	0.37
Reach-1	1538	50 Year	391.30	474.84	479.19		479.21	0.000823	1.38	332.09	125.80	0.12
Reach-1	1538	100 Year	435.70	474.84	480.35		480.36	0.000348	1.07	493.66	152.35	0.08
Reach-1	1538	500 Year	551.50	474.84	481.74		481.75	0.000198	0.95	727.64	184.29	0.07
Reach-1	1422	10 Year	279.70	471.64	476.67		476.73	0.002026	2.15	169.20	82.82	0.19
Reach-1	1422	50 Year	391.30	471.64	479.13		479.15	0.000345	1.23	443.99	135.35	0.09
Reach-1	1422	100 Year	435.70	471.64	480.32		480.33	0.000178	0.99	617.27	155.40	0.06
Reach-1	1422	500 Year	551.50	471.64	481.72		481.73	0.000119	0.91	849.01	175.48	0.05
Reach-1	1284	10 Year	279.70	471.53	476.59		476.61	0.000450	1.11	331.31	134.93	0.09
Reach-1	1284	50 Year	391.30	471.53	479.12		479.12	0.000102	0.72	760.09	204.11	0.05
Reach-1	1284	100 Year	435.70	471.53	480.32		480.32	0.000057	0.60	1022.94	234.16	0.04
Reach-1	1284	500 Year	551.50	471.53	481.72		481.72	0.000042	0.57	1373.05	265.81	0.03
Reach-1	1202	10 Year	279.70	470.45	476.55	473.53	476.57	0.000355	1.40	341.29	174.16	0.11
Reach-1	1202	50 Year	391.30	470.45	479.11	473.89	479.12	0.000060	0.74	916.62	263.73	0.05
Reach-1	1202	100 Year	435.70	470.45	480.31	474.00	480.32	0.000031	0.59	1250.20	290.97	0.03
Reach-1	1202	500 Year	551.50	470.45	481.72	474.27	481.72	0.000022	0.54	1676.91	318.31	0.03
Reach-1	1119.5		Culvert									
Reach-1	1076	10 Year	282.00	469.20	472.93	472.93	474.78	0.023479	10.91	25.85	87.56	1.00
Reach-1	1076	50 Year	395.80	469.20	473.87	473.87	476.19	0.021797	12.22	32.39	128.13	1.00
Reach-1	1076	100 Year	440.80	469.20	474.20	474.20	476.71	0.021461	12.70	34.72	140.97	1.00
Reach-1	1076	500 Year	555.70	469.20	474.90	474.90	475.09	0.002633	4.85	190.24	165.71	0.36
Reach-1	1026	10 Year	282.00	465.90	471.01		471.06	0.000698	1.99	181.74	85.91	0.17
Reach-1	1026	50 Year	395.80	465.90	471.24		471.32	0.001080	2.56	202.38	93.46	0.22
Reach-1	1026	100 Year	440.80	465.90	471.40		471.49	0.001136	2.69	217.83	98.73	0.22
Reach-1	1026	500 Year	555.70	465.90	471.51		471.65	0.001612	3.26	229.14	102.43	0.27
Reach-1	981	10 Year	282.00	465.70	470.99		471.03	0.000553	1.85	200.66	97.08	0.16
Reach-1	981	50 Year	395.80	465.70	471.20		471.28	0.000872	2.40	222.73	105.91	0.20
Reach-1	981	100 Year	440.80	465.70	471.36		471.44	0.000921	2.52	240.09	112.38	0.20

HEC-RAS Plan: Post-Project River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	981	500 Year	555.70	465.70	471.46		471.58	0.001331	3.07	251.04	116.27	0.25
Reach-1	918	10 Year	282.00	465.30	470.98		471.00	0.000248	1.24	310.87	138.11	0.10
Reach-1	918	50 Year	395.80	465.30	471.20		471.23	0.000390	1.61	341.55	145.46	0.13
Reach-1	918	100 Year	440.80	465.30	471.36		471.39	0.000411	1.69	365.21	150.88	0.14
Reach-1	918	500 Year	555.70	465.30	471.45		471.50	0.000595	2.06	379.59	154.08	0.17
Reach-1	833	10 Year	282.00	464.10	470.97	468.82	470.98	0.000154	1.01	445.86	201.91	0.07
Reach-1	833	50 Year	395.80	464.10	471.18	469.99	471.19	0.000276	1.38	489.21	211.73	0.09
Reach-1	833	100 Year	440.80	464.10	471.34	470.27	471.35	0.000286	1.43	523.46	217.95	0.09
Reach-1	833	500 Year	555.70	464.10	471.43	470.27	471.45	0.000414	1.73	542.53	221.34	0.11
Reach-1	817.5		Culvert									
Reach-1	802	10 Year	282.00	463.92	467.34	466.81	467.44	0.005690	3.52	134.62	107.33	0.34
Reach-1	802	50 Year	395.80	463.92	467.74	466.81	467.85	0.005549	3.76	182.16	128.59	0.34
Reach-1	802	100 Year	440.80	463.92	467.88	466.82	467.99	0.005497	3.83	200.36	135.85	0.35
Reach-1	802	500 Year	555.70	463.92	468.18	467.06	468.29	0.005376	3.99	243.25	146.09	0.35
Reach-1	726	10 Year	282.00	463.60	466.81		466.93	0.008483	2.84	107.79	76.39	0.34
Reach-1	726	50 Year	395.80	463.60	467.17		467.32	0.008976	3.24	138.43	91.08	0.36
Reach-1	726	100 Year	440.80	463.60	467.30		467.46	0.009085	3.37	150.37	96.20	0.37
Reach-1	726	500 Year	555.70	463.60	467.56		467.75	0.009732	3.71	176.62	106.60	0.38
Reach-1	635	10 Year	282.00	462.00	464.69	464.69	465.28	0.055775	6.34	49.72	48.27	0.84
Reach-1	635	50 Year	395.80	462.00	465.06	465.06	465.67	0.048502	6.71	69.95	61.60	0.81
Reach-1	635	100 Year	440.80	462.00	465.18	465.18	465.81	0.047404	6.87	77.23	65.74	0.81
Reach-1	635	500 Year	555.70	462.00	465.48	465.45	466.10	0.041128	6.97	99.15	76.87	0.77
Reach-1	619	10 Year	282.00	460.00	464.25		464.55	0.018752	4.45	64.29	35.08	0.50
Reach-1	619	50 Year	395.80	460.00	464.66		465.07	0.020718	5.19	82.06	50.78	0.54
Reach-1	619	100 Year	440.80	460.00	464.80		465.24	0.021169	5.42	89.57	56.11	0.55
Reach-1	619	500 Year	555.70	460.00	465.11		465.61	0.022059	5.90	108.69	67.81	0.57
Reach-1	495	10 Year	282.00	458.30	462.20		462.37	0.016112	3.28	86.59	60.43	0.45
Reach-1	495	50 Year	395.80	458.30	462.56		462.77	0.015970	3.72	111.07	76.60	0.46
Reach-1	495	100 Year	440.80	458.30	462.67		462.90	0.016008	3.87	120.53	82.00	0.47
Reach-1	495	500 Year	555.70	458.30	462.94		463.20	0.016084	4.20	144.27	94.20	0.48

HEC-RAS Plan: Post-Project River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	393	10 Year	282.00	456.95	460.91	459.87	461.07	0.010542	3.50	103.01	95.31	0.39
Reach-1	393	50 Year	395.80	456.95	461.17	460.61	461.37	0.012367	4.04	129.30	106.93	0.42
Reach-1	393	100 Year	440.80	456.95	461.26	460.74	461.48	0.012933	4.22	139.10	110.95	0.44
Reach-1	393	500 Year	555.70	456.95	461.45	460.94	461.71	0.014548	4.67	160.99	119.45	0.47



CREATED TO REFLECT LOMR EFFECTIVE: August 29, 2014

FLOOD PROFILES

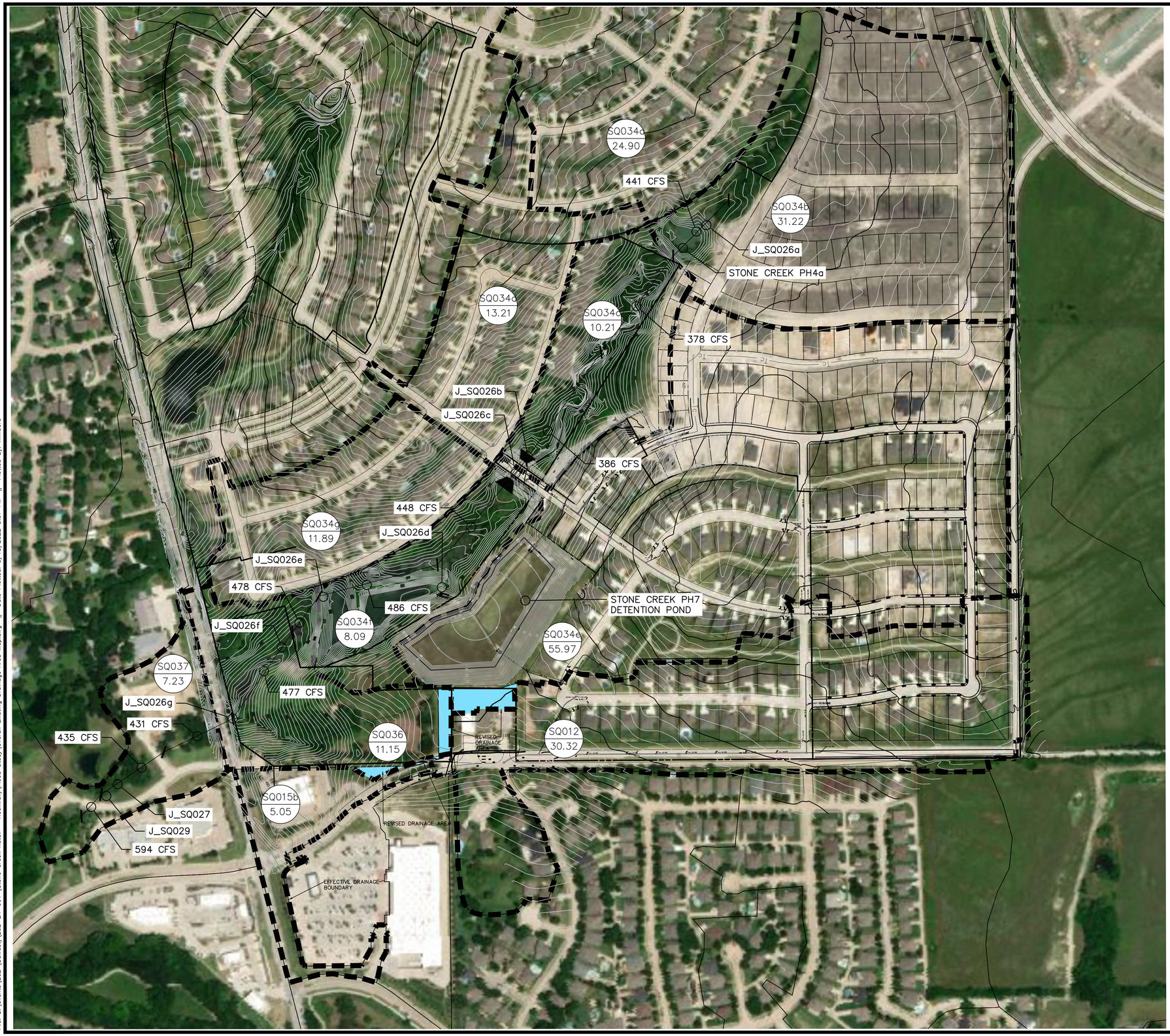
SQUABBLE CREEK TRIBUTARY D

FEDERAL EMERGENCY MANAGEMENT AGENCY

ROCKWALL COUNTY, TX

AND INCORPORATED AREAS

282P



N

GRAPHIC SCALE

200 0 100 200 400

(IN FEET)
1 inch = 200 ft.

LEGEND

118	EXISTING CONTOUR
Tc	TIME OF CONCENTRATION
Tc	FLOW TYPE CHANGE
	DISCHARGE SEGMENT
	AREA DIVIDE
AREA DA-X ACRES 1.00	DRAINAGE AREA LABEL

MDS REVISED SUBBASINS

1. SQ012
2. SQ015b
3. SQ034e
4. SQ034f
5. SQ036 (SITE)

BENCHMARKS

BM#1:
CITY OF ROCKWALL MONUMENT 14

NAVD88
ELEV.=497.13

BANNISTER ENGINEERING
240 North Mitchell Road | Mansfield, TX 76063| 817.842.2094| 817.842.2095 fax
REGISTRATION # F-10599 (TEXAS)

STONE CREEK RETAIL

ROCKWALL, TEXAS

OVERALL EXISTING DRAINAGE AREA MAP

No.	Date	Revision Description

PROJECT NO.: 262-21-001

STATE OF TEXAS
MICHAEL J. MOORE
128498
LICENSED
PROFESSIONAL ENGINEER

3/15/2022

SHEET NUMBER

6

File: B:\Clients\262 (DuWest)\262-21-001 (Stone Creek Retail - Rockwall)\Flood Study\Overall Existing Drainage Area Map.dwg | Date Plotted: 3/15/2022 3:07 PM | Plotted By: mmoore

SCS TIME OF CONCENTRATION CALCULATIONS

EXISTING SCS Tc CALCULATIONS FOR AREA SQ034e

TYPE	CONDITION	DIST	UP ELEV	DOWN ELEV	SLOPE	Coeff.	P_2	VELOCITY	TIME (MIN)
SHEET	GRASS	28	541.3	540.8	1.8%	0.24	4.09	0.10	4.8
SHALLOW	GRASS	126	540.8	539.4	1.1%	16.13		1.70	1.2
SHALLOW	PAVE	480	538.9	535.19	0.8%	20.33		1.79	4.5
PIPE	PAVE	1913						10.4	3.1
								TOTAL	13.5

SCS CALCULATION REFERENCES

Sheet Flow

Sheet flow can be calculated using the following formula:

$$T_t = \frac{0.42\,(nL)^{0.8}}{60\,(P_2)^{0.5}(S)^{0.4}} = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5}(S)^{0.4}} \qquad (1.10)$$

where:

T_t = travel time (hr)
n = Manning roughness coefficient (see Table 1.10)
L = flow length (ft),
P_2 = 2-year, 24-hour rainfall
S = land slope (ft/ft)

Table 1.10 Roughness Coefficients (Manning's n) for Sheet Flow[1]

Surface Description	n
Smooth surfaces	
(concrete, asphalt, gravel or bare soil)	0.011
Fallow	
(no residue)	0.05
Cultivated soils:	
Residue cover < 20%	0.06
Residue cover > 20%	0.17
Grass:	
Short grass prairie	0.15
Dense grasses[2]	0.24
Bermuda grass	0.41
Range	
(natural)	0.13
Woods[3]	
Light underbrush	0.40
Dense underbrush	0.80

[1] The n values are a composite of information by Engman (1986).
[2] Includes species such as bluestem grass, buffalo grass, grama grass, and native grass mixtures.
[3] When selecting n, consider cover to a height of about 0.1 ft. This is the only part of the plant cover that will obstruct sheet flow.
Source: SCS, TR-55, Second Edition, June 1986.

NOTE: REFERENCED SHEET FLOW EQUATION CALCULATES Tc IN HOURS. THE EQUATION USED WAS MODIFIED TO CALCULATE Tc IN MINUTES

VELOCITY SHALLOW FLOW EQUATION

Unpaved $V = 16.13(S)^{0.5}$
Paved $V = 20.33(S)^{0.5}$

where:
V = average velocity (ft/s)
S = slope of hydraulic grade line (watercourse slope, ft/ft)

PHASE 7 STONE CREEK DETENTION POND

POND VOLUME CALCULATIONS

ELEVATION	AREA	VOLUME	TOTAL VOLUME
(ft)	(sf)	(cu.ft.)	(cu.ft.)
493	0	0	0
494	19,559	9,780	9,780
494.5	44,932	16,123	25,902
495	71,048	28,995	54,897
495.5	90,653	40,425	95,323
496	104,477	48,783	144,105
496.5	116,529	55,252	199,357
497	119,958	59,122	258,478
498	128,248	124,103	382,581
499	136,734	132,491	515,072
500	145,415	141,075	656,147
501	154,292	149,854	806,000
502	163,365	158,829	964,829

ROUTING TABLES

1622-1917 R_SQ015e	
Volume (ac-ft)	Discharge (cfs)
0.16	50
0.27	100
0.35	150
0.42	200
0.49	250
0.54	300
0.58	350
0.66	400
1.13	450
2.02	500
2.63	600
3.34	650
3.60	700

1202-1622 R_SQ015f	
Volume (ac-ft)	Discharge (cfs)
0.24	50
0.45	100
0.75	150
1.17	200
1.70	250
2.42	300
3.72	350
5.44	400
7.74	450
10.71	500
12.60	600
14.86	650

BY:
DATE:
CK'D:
DATE:
LOSS RATE METHOD
STREAM ROUTING

COMPUTATION SUMMARY SHEET
HYDROLOGY BY UNIT HYDROGRAPH METHOD

SHEET 1 OF 1
SUBWATERSHED
MAJOR WATERSHED
JOB/FILE NO.:

ANALYSIS POINT	SUBWATERSHED AREA (SQ.MI.)	WATERSHED AREA (SQ.MI.)	UNIT HYDROGRAPH COEFFICIENTS: SCS METHOD C_N	Lag (MIN)	SNYDER'S METHOD C_P	T_P (HR)	PEAK DISCHARGES (CFS): Q_5	Q_{10}	Q_{25}	Q_{100}	COMMENTS
MDS											
SQ012	0.04874	0.04874	94.40	18.7						169.0	
SQ015b	0.00804	0.00804	96.88	10						35.2	
SQ034a	0.03900	0.03900	95.64	4.28						203.9	
SQ034b	0.04860	0.04860	95.35	6.19						236.7	
SQ034c	0.01730	0.01730	88.93	5.43						83.9	
SQ034d	0.02050	0.02050	96.35	5.38						103.9	
SQ034e	0.08520	0.08520	95.46	9.10						380.9	
SQ034f	0.01480	0.01480	87.10	6.47						67.8	
SQ034g	0.01840	0.01840	94.81	5.49						92.4	
SQ036	0.01670	0.01670	92.71	4.12						86.4	Site
Stone Creek Phase 7		0.08520								130.3	
R_SQ015e		0.22540								457.0	
R_SQ015f		0.24380								421.6	
J_SQ008		0.14576								509.7	
J_SQ009		0.16226								531.5	
J_SQ010		4.88640								1125.5	
J_SQ021		5.44221								2377.7	
J_SQ023		5.45421								2429.2	
J_SQ024		5.48127								2425.0	
J_SQ025		5.56291								2680.3	
J_SQ026a		0.08760								440.7	
J_SQ026b		0.10490								385.8	
J_SQ026c		0.12540								447.8	
J_SQ026d		0.21060								475.0	
J_SQ026e		0.22540								474.1	
J_SQ026f		0.24380								472.4	
J_SQ026g		0.26050								431.5	
J_SQ027		0.27250								436.5	
J_SQ029		0.42610								595.5	
J_SQ030		5.98901								3206.7	
J_SQ031		6.08258								2776.8	
J_SQ034		6.26310								3032.3	
J_SQ035		6.28927								2999.3	
J_SQ037		6.40495								3006.3	
J_SQ039		6.50460								3080.6	
J_SQ040		6.76805								3188.2	
J_SQ041		7.03088								3529.5	
PRE-PROJECT											
SQ012	0.04738	0.04738	94.4	18.7						164.3	
SQ015b	0.00789	0.00789	96.8	10						34.5	
SQ034a	0.03900	0.03900	95.64	4.28						203.9	
SQ034b	0.04860	0.04860	95.35	6.19						236.7	
SQ034c	0.01730	0.01730	88.93	5.43						83.9	
SQ034d	0.02050	0.02050	96.35	5.38						103.9	
SQ034e	0.08745	0.08745	94.2	9.10						403.8	
SQ034f	0.01264	0.01264	79.1	6.47						52.9	
SQ034g	0.01840	0.01840	94.81	5.49						92.4	
SQ036	0.01742	0.01742	86.6	7.4						77.8	Proposed site.
Stone Creek Phase 7		0.08745								136.3	
R_SQ015e		0.22550								460.7	
R_SQ015f		0.24390								419.5	
J_SQ008		0.14440								508.9	
J_SQ009		0.16090								530.7	
J_SQ010		4.88504								1125.2	
J_SQ021		5.44070								2376.1	
J_SQ023		5.45270								2427.6	
J_SQ024		5.47976								2423.0	
J_SQ025		5.56140								2678.2	
J_SQ026a		0.08760								440.7	
J_SQ026b		0.10490								385.8	
J_SQ026c		0.12540								447.8	
J_SQ026d		0.21285								486.0	
J_SQ026e		0.22550								477.9	
J_SQ026f		0.24390								477.1	
J_SQ026g		0.26131								430.7	
J_SQ027		0.27331								435.4	
J_SQ029		0.42691								594.4	
J_SQ030		5.98831								3206.1	
J_SQ031		6.08188								2770.9	
J_SQ034		6.26240								3023.6	
J_SQ035		6.28857								2992.0	
J_SQ037		6.40425								2997.4	
J_SQ039		6.50390								3071.6	
J_SQ040		6.76735								3185.4	
J_SQ041		7.03018								3525.4	

MDS/PRE-PROJECT 100-YEAR DISCHARGE SUMMARY

MDS		PRE-PROJECT		
DESIGN POINT	DISCHARGE (cfs)	DESIGN POINT	DISCHARGE (cfs)	DIFFERENCE (cfs)
SQ012	169.0	SQ012	164.3	-4.7
SQ015b	35.2	SQ015b	34.5	-0.7
SQ034a	203.9	SQ034a	203.9	0.0
SQ034b	236.7	SQ034b	236.7	0.0
SQ034c	83.9	SQ034c	83.9	0.0
SQ034d	103.9	SQ034d	103.9	0.0
SQ034e	380.9	SQ034e	403.8	22.9
SQ034f	67.8	SQ034f	52.9	-14.9
SQ034g	92.4	SQ034g	92.4	0.0
SQ036	86.4	SQ036	77.8	-8.6
Stone Creek Phase 7	130.3	Stone Creek Phase 7	136.3	6.0
J_SQ008	509.7	J_SQ008	508.9	-0.8
J_SQ009	531.5	J_SQ009	530.7	-0.8
J_SQ010	1125.5	J_SQ010	1125.2	-0.3
J_SQ021	2377.7	J_SQ021	2376.1	-1.6
J_SQ023	2429.2	J_SQ023	2427.6	-1.6
J_SQ024	2425.0	J_SQ024	2423.0	-2.0
J_SQ025	2680.3	J_SQ025	2678.2	-2.1
J_SQ026c	447.8	J_SQ026c	447.8	0.0
J_SQ026d	475.0	J_SQ026d	486.0	11.0
J_SQ026e	474.1	J_SQ026e	477.9	3.8
J_SQ026f	472.4	J_SQ026f	477.1	4.7
J_SQ026g	431.5	J_SQ026g	430.7	-0.8
J_SQ027	436.5	J_SQ027	435.4	-1.1
J_SQ029	595.5	J_SQ029	594.4	-1.1
J_SQ030	3206.7	J_SQ030	3206.1	-0.6
J_SQ031	2776.8	J_SQ031	2770.9	-5.9
J_SQ034	3032.3	J_SQ034	3023.6	-8.7
J_SQ035	2999.3	J_SQ035	2992.0	-7.3
J_SQ037	3006.3	J_SQ037	2997.4	-8.9
J_SQ039	3080.6	J_SQ039	3071.6	-9.0
J_SQ040	3188.2	J_SQ040	3185.4	-2.8

SCS CURVE NUMBER CALCULATIONS

EXISTING CN CALCULATIONS

BASIN	LAND USE	AREA	SOIL GROUP	AREA	CN	%	CN*%
SQ036	OPEN SPACE (Good)	9.19	B	4.95	61	44.4%	27.1
			D	4.24	80	38.0%	30.4
	PAVED STREET	1.09	B	0.64	89	5.7%	5.1
			D	0.45	93	4.0%	3.7
	COMMERCIAL	0.87	B	0.28	92	2.6%	2.4
			D	0.59	95	5.3%	5.0
	TOTAL	11.15		11.15		**TOTAL**	**73.7**
SQ012	OPEN SPACE (Good)	2.28	B	1.63	61	5.4%	3.3
			D	0.65	80	2.1%	1.7
	OPEN SPACE (Fair)	1.36	B	0.00	69	0.0%	0.0
			D	1.36	84	4.5%	3.8
	PAVED STREET	10.33	B	0.31	89	1.0%	0.9
			D	10.02	93	33.0%	30.7
	COMMERCIAL	0.84	B	0.00	92	0.0%	0.0
			D	0.84	95	2.8%	2.6
	RES 1/8 ACRE	4.32	B	0.00	87	0.0%	0.0
			D	4.32	93	14.2%	13.3
	RES 1/4 ACRE	8.46	B	1.40	78	4.6%	3.6
			D	7.06	88	23.3%	20.5
	RES 1/3 ACRE	1.95	B	0.57	75	1.9%	1.4
			D	1.38	87	4.5%	4.0
	RES 1/2 ACRE	0.80	B	0.00	75	0.0%	0.0
			D	0.80	87	2.6%	2.3
	TOTAL	30.32		30.32		**TOTAL**	**88.0**
SQ034e	OPEN SPACE (Good)	6.36	B	2.91	61	5.2%	3.2
			D	3.45	80	6.2%	4.9
	OPEN SPACE (Fair)	4.98	B	0.01	69	0.0%	0.0
			D	4.97	84	8.9%	7.5
	PAVED STREET	9.85	B	1.21	89	2.2%	1.9
			D	8.64	93	15.4%	14.4
	COMMERCIAL	0.52	B	0.00	92	0.0%	0.0
			D	0.52	95	0.9%	0.9
	RES 1/8 ACRE	18.76	B	0.62	87	1.1%	1.0
			D	18.14	93	32.4%	30.1
	RES 1/4 ACRE	14.21	B	2.89	78	5.2%	4.0
			D	11.32	88	20.2%	17.8
	RES 1/3 ACRE	1.12	B	0.00	75	0.0%	0.0
			D	1.12	87	2.0%	1.7
	RES 1/2 ACRE	0.17	B	0.00	75	0.0%	0.0
			D	0.17	87	0.3%	0.3
	TOTAL	55.97		55.97		**TOTAL**	**87.7**

EXISTING CN CALCULATIONS

SQ034f	OPEN SPACE (Good)	7.98	B	7.60	61	93.9%	57.3
			D	0.38	80	4.7%	3.8
	PAVED STREET	0.07	B	0.05	89	0.6%	0.6
			D	0.02	93	0.3%	0.3
	RES 1/4 ACRE	0.04	B	0.04	78	0.5%	0.4
			D	0.00	88	0.0%	0.0
	TOTAL	8.09		8.09		**TOTAL**	**62.2**
SQ015b	OPEN SPACE (Good)	1.98	B	0.99	89	19.6%	17.5
			D	0.99	93	19.6%	18.2
	COMMERCIAL	3.07	B	0.71	92	14.1%	13.0
			D	2.35	95	46.6%	44.3
	TOTAL	5.05		5.05		**TOTAL**	**93.0**

Cover Type	Cover Description	Land Use Code	A	B	C	D	W
Cultivated land	w/o conservation treatment	1	72	81	88	91	100
	w/ conservation treatment	2	62	71	78	81	100
Pasture	poor	3	68	79	86	89	100
	good	4	39	61	74	80	100
Open Space	good	5	39	61	74	80	100
Brush	good	6	30	48	65	73	100
Forest land	thin stand, poor cover	7	45	66	77	83	100
	good cover	8	30	55	70	77	100
Open space (lawns, parks, golf courses, cemeteries)	poor (grass cover < 50%)	9	68	79	86	89	100
	fair (grass cover 50% to 75%)*	10	49	69	79	84	100
	good (grass cover > 75%)	11	39	61	74	80	100
Impervious areas	Paved; excluding R.O.W	12	98	98	98	98	100
	Paved; open ditches + R.O.W.*	13	83	89	92	93	100
	Gravel + R.O.W.	14	76	85	89	91	100
	Dirt + R.O.W.	15	72	82	87	89	100
Urban districts	Commercial and business 85%IMP*	16	89	92	94	95	100
	Industrial 72% IMP	17	81	88	91	93	100
Residential	1/8 ac or less 65%IMP*	18	80	87	91	93	100
	1/4 ac 38%IMP*	19	66	78	85	88	100
	1/3 ac 30%IMP*	20	60	75	83	87	100
	1/2 ac 25%IMP*	21	60	75	83	87	100
	1 ac 20%IMP*	22	59	74	82	86	100
	2 ac 12%IMP	23	46	65	77	82	100

*iSWM CN checked and revised to match Rockwall CN.

CN SUMMARY

BASIN	AREA	%	CN
SQ036	11.15	1.00	73.7
AMC-3			86.6
SQ012	30.32	1.00	88.0
AMC-3			94.4
SQ034e	55.97	1.00	87.7
AMC-3			94.2
SQ034f	8.09	1.00	62.2
AMC-3			79.1
SQ015b	5.05	1.00	93.0
AMC-3			96.8

BANNISTER ENGINEERING
240 North Mitchell Road | Mansfield, TX 76063| 817.842.2094| 817.842.2095 fax
REGISTRATION # F-10599 (TEXAS)

STONE CREEK RETAIL
ROCKWALL, TEXAS

OVERALL EXISTING DRAINAGE AREA CALCULATIONS

No.	Date	Revision Description

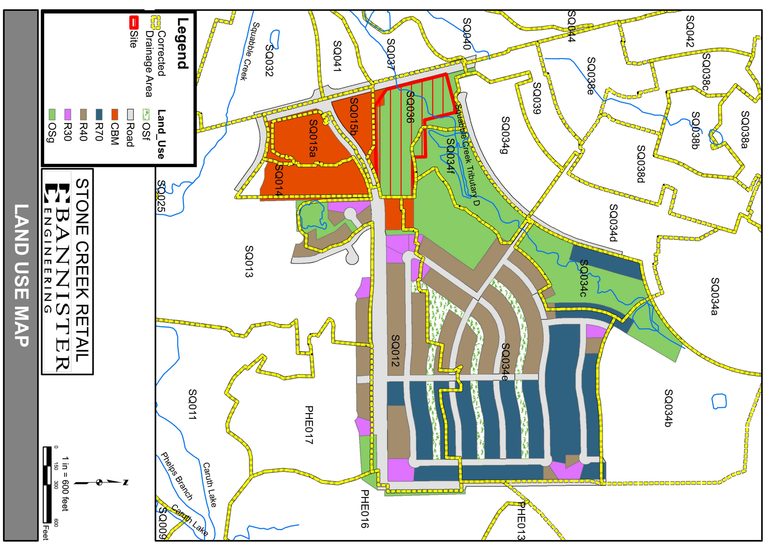
PROJECT NO.: 262-21-001

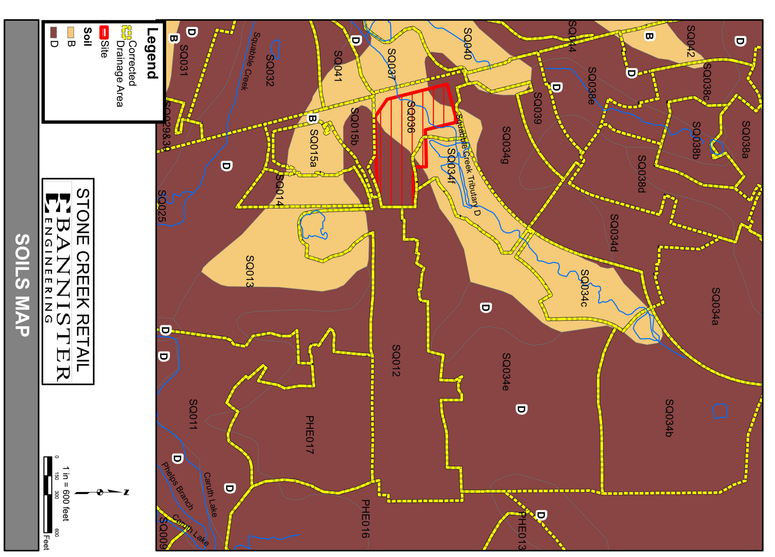
STATE OF TEXAS
MICHAEL J. MOORE
128498
LICENSED
PROFESSIONAL ENGINEER

3/15/2022

SHEET NUMBER
7

File: B:\Clients\262 (DuWest)\262-21-001 (Stone Creek Retail - Rockwall)\Flood Study\Overall Existing Drainage Area Map.dwg || Date Plotted: 3/15/2022 3:13 PM || Plotted By: mmoore





No.	Date	Revision Description

PROJECT NO.: 262-21-001

STONE CREEK RETAIL

ROCKWALL, TEXAS

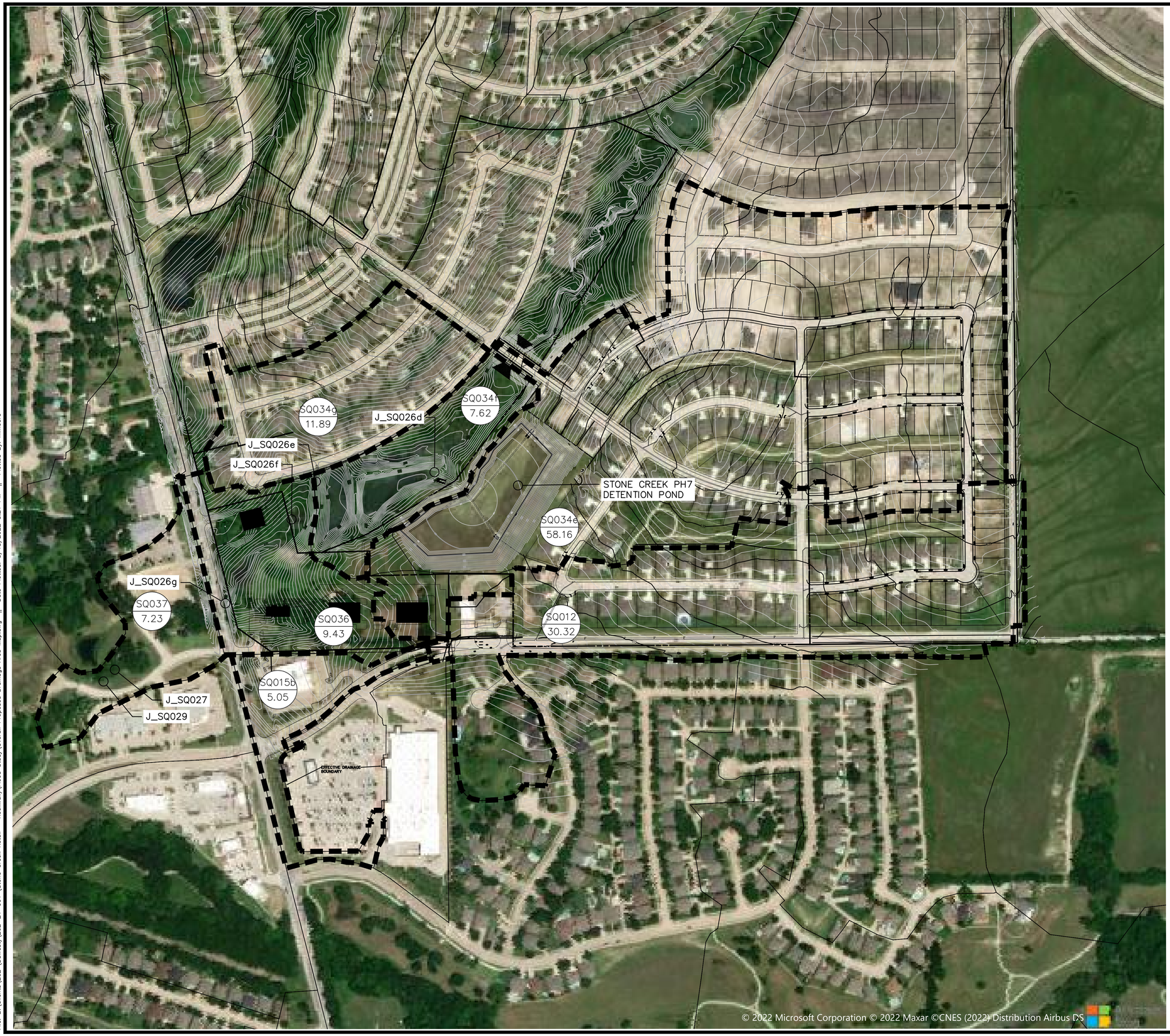
EXISTING LAND USE & SOILS MAP

BANNISTER ENGINEERING
240 North Mitchell Road | Mansfield, TX 76063| 817.842.2094| 817.842.2095 fax
REGISTRATION # F-10599 (TEXAS)

MICHAEL J. MOORE
128498
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

3/15/2022

SHEET NUMBER 8



N

GRAPHIC SCALE

200 0 100 200 400

(IN FEET)
1 inch = 200 ft.

LEGEND

- 118 — EXISTING CONTOUR
- Tc — TIME OF CONCENTRATION
- Tc — FLOW TYPE CHANGE
- AREA DIVIDE
- AREA / ACRES: DA-X / 1.00 — DRAINAGE AREA LABEL

POST-PROJECT REVISED SUBBASINS

1. SQ034e
2. SQ034f
3. SQ036 (SITE)

BENCHMARKS

BM#1:
CITY OF ROCKWALL MONUMENT 14

NAVD88
ELEV.=497.13

BANNISTER ENGINEERING
240 North Mitchell Road | Mansfield, TX 76063| 817.842.2094| 817.842.2095 fax
REGISTRATION # F-10399 (TEXAS)

STONE CREEK RETAIL
ROCKWALL, TEXAS

OVERALL PROPOSED DRAINAGE AREA MAP

No.	Date	Revision Description

PROJECT NO.: 262-21-001

STATE OF TEXAS
MICHAEL J. MOORE
128498
LICENSED
PROFESSIONAL ENGINEER

3/15/2022

SHEET NUMBER
9

File: B:\Clients\262 (DuWest)\262-21-001 (Stone Creek Retail - Rockwall)\Flood Study\Overall Proposed Drainage Area Map.dwg || Date Plotted: 3/15/2022 3:21 PM || Plotted By: mmoore

SCS TIME OF CONCENTRATION CALCULATIONS

LAG 8.1

EXISTING SCS Tc CALCULATIONS FOR AREA SQ034f

TYPE	CONDITION	DIST	UP ELEV	DOWN ELEV	SLOPE	Coeff.	P_2	VELOCITY	TIME (MIN)
SHEET	GRASS	79	510	492	22.8%	0.24	4.09	0.33	4.0
SHALLOW	GRASS	116	492	490.5	1.3%	16.13		1.83	1.1
CHANNEL	GRASS	871	SC PH7 - from HEC-RAS					2.5	5.8
								TOTAL	10.8

SCS CALCULATION REFERENCES

Sheet Flow

Sheet flow can be calculated using the following formula:

$$T_t = \frac{0.42\,(nL)^{0.8}}{60\,(P_2)^{0.5}(S)^{0.4}} = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5}(S)^{0.4}} \qquad (1.10)$$

where:

T_t = travel time (hr)
n = Manning roughness coefficient (see Table 1.10)
L = flow length (ft),
P_2 = 2-year, 24-hour rainfall
S = land slope (ft/ft)

Table 1.10 Roughness Coefficients (Manning's n) for Sheet Flow[1]

Surface Description	n
Smooth surfaces	
(concrete, asphalt, gravel or bare soil)	0.011
Fallow	
(no residue)	0.05
Cultivated soils:	
Residue cover < 20%	0.06
Residue cover > 20%	0.17
Grass:	
Short grass prairie	0.15
Dense grasses[2]	0.24
Bermuda grass	0.41
Range	
(natural)	0.13
Woods[3]	
Light underbrush	0.40
Dense underbrush	0.80

[1] The n values are a composite of information by Engman (1986).
[2] Includes species such as bluestem grass, buffalo grass, grama grass, and native grass mixtures.
[3] When selecting n, consider cover to a height of about 0.1 ft. This is the only part of the plant cover that will obstruct sheet flow.
Source: SCS, TR-55, Second Edition, June 1986.

NOTE: REFERENCED SHEET FLOW EQUATION CALCULATES Tc IN HOURS. THE EQUATION USED WAS MODIFIED TO CALCULATE Tc IN MINUTES

VELOCITY SHALLOW FLOW EQUATION

Unpaved $V = 16.13(S)^{0.5}$
Paved $V = 20.33(S)^{0.5}$

where:
V = average velocity (ft/s)
S = slope of hydraulic grade line (watercourse slope, ft/ft)

PHASE 7 STONE CREEK DETENTION POND

POND VOLUME CALCULATIONS

ELEVATION	AREA	VOLUME	TOTAL VOLUME
(ft)	(sf)	(cu.ft.)	(cu.ft.)
493	0	0	0
494	19,559	9,780	9,780
494.5	44,932	16,123	25,902
495	71,048	28,995	54,897
495.5	90,653	40,425	95,323
496	107,413	49,517	144,839
496.5	124,966	58,095	202,934
497	133,300	64,567	267,500
497.5	141,163	68,616	336,116
498	145,016	71,545	407,661
499	154,380	149,698	557,359
500	163,913	159,147	716,505
501	173,615	168,764	885,269
502	183,722	178,669	1,063,938

PROPOSED DETENTION POND SUMMARY

Storm Event	Discharge In	Top of Berm	Max. Storage	Discharge Out	Peak Elevation	Utilized Storage	Freeboard
	(cfs)		(ac.ft.)	(cfs)		(ac.ft.)	(ft)
100-YEAR	419.8	502	24.42	127.9	499.66	15.21	2.34
25-YEAR	327.8	502	24.42	70.2	498.83	12.21	3.17
10-YEAR	278.9	502	24.42	64.8	498.15	9.87	3.85
5-YEAR	230.3	502	24.42	58.8	497.47	7.62	4.53

WEIR EQUATION:
$Q = CLH^{1.5}$
C=WEIR COEFFICIENT=3.32
L=WEIR LENGTH
H=HEAD ABOVE WEIR

RISER EMERGENCY OVERFLOW
L=46'
H=2'
DEPTH=1.96'
Q CAPACITY=432.0 CFS
Q100=419.8 CFS

ROUTING TABLES

1622-1917 R_SQ015e	
Volume (ac-ft)	Discharge (cfs)
0.16	50
0.26	100
0.36	150
0.43	200
0.48	250
0.54	300
0.58	350
0.63	400
1.06	450
1.88	500
2.47	600
3.19	650
3.45	700

1202-1622 R_SQ015f	
Volume (ac-ft)	Discharge (cfs)
0.27	50
0.52	100
0.83	150
1.27	200
1.90	250
2.73	300
4.15	350
5.91	400
8.12	450
10.79	500
12.64	600
15.08	650

SCS CURVE NUMBER CALCULATIONS

PROPOSED CN CALCULATIONS

BASIN	LAND USE	AREA	SOIL GROUP	AREA	CN	%	CN*%
SQ036	OPEN SPACE (Good)	2.91	B	2.55	61	27.1%	16.5
			D	0.36	80	3.8%	3.0
	PAVED STREET	1.09	B	0.64	89	6.8%	6.0
			D	0.45	93	4.8%	4.4
	COMMERCIAL	5.43	B	2.68	92	28.4%	26.1
			D	2.75	95	29.2%	27.7
	TOTAL	9.43		9.43		**TOTAL**	**83.9**
SQ034e	OPEN SPACE (Good)	6.91	B	3.07	61	5.3%	3.2
			D	3.85	80	6.6%	5.3
	OPEN SPACE (Fair)	4.98	B	0.01	69	0.0%	0.0
			D	4.97	84	8.6%	7.2
	PAVED STREET	9.85	B	1.21	89	2.1%	1.9
			D	8.64	93	14.9%	13.8
	COMMERCIAL	2.16	B	0.00	92	0.0%	0.0
			D	2.16	95	3.7%	3.5
	RES 1/8 ACRE	18.76	B	0.62	87	1.1%	0.9
			D	18.14	93	31.2%	29.0
	RES 1/4 ACRE	14.21	B	2.89	78	5.0%	3.9
			D	11.32	88	19.5%	17.1
	RES 1/3 ACRE	1.12	B	0.00	75	0.0%	0.0
			D	1.12	87	1.9%	1.7
	RES 1/2 ACRE	0.17	B	0.00	75	0.0%	0.0
			D	0.17	87	0.3%	0.2
	TOTAL	58.16		58.16		**TOTAL**	**87.8**
SQ034f	OPEN SPACE (Good)	7.50	B	7.44	61	97.7%	59.6
			D	0.06	80	0.8%	0.6
	PAVED STREET	0.07	B	0.05	89	0.7%	0.6
			D	0.02	93	0.3%	0.3
	RES 1/4 ACRE	0.04	B	0.04	78	0.5%	0.4
			D	0.00	88	0.0%	0.0
	TOTAL	7.62		7.62		**TOTAL**	**61.5**

CN SUMMARY

BASIN	AREA	%	CN
SQ036	9.43	1.00	83.9
AMC-3			92.3
SQ034e	58.16	1.00	87.8
AMC-3			94.3
SQ034f	7.62	1.00	61.5
AMC-3			78.6

Cover Type	Cover Description	Land Use Code	A	B	C	D	W
Cultivated land	w/o conservation treatment	1	72	81	88	91	100
	w/ conservation treatment	2	62	71	78	81	100
Pasture	poor	3	68	79	86	89	100
	good	4	39	61	74	80	100
Open Space	good	5	39	61	74	80	100
Brush	good	6	30	48	65	73	100
Forest land	thin stand, poor cover	7	45	66	77	83	100
	good cover	8	30	55	70	77	100
Open space (lawns, parks, golf courses, cemeteries)	poor (grass cover < 50%)	9	68	79	86	89	100
	fair (grass cover 50% to 75%)*	10	49	69	79	84	100
	good (grass cover > 75%)	11	39	61	74	80	100
Impervious areas	Paved; excluding R.O.W	12	98	98	98	98	100
	Paved; open ditches + R.O.W.*	13	83	89	92	93	100
	Gravel + R.O.W.	14	76	85	89	91	100
	Dirt + R.O.W.	15	72	82	87	89	100
Urban districts	Commercial and business 85%IMP*	16	89	92	94	95	100
	Industrial 72% IMP	17	81	88	91	93	100
Residential	1/8 ac or less 65%IMP*	18	80	87	91	93	100
	1/4 ac 38%IMP*	19	66	78	85	88	100
	1/3 ac 30%IMP*	20	60	75	83	87	100
	1/2 ac 25%IMP*	21	60	75	83	87	100
	1 ac 20%IMP*	22	59	74	82	86	100
	2 ac 12%IMP	23	46	65	77	82	100

*iSWM CN checked and revised to match Rockwall CN.

BY:
DATE:
CK'D:
DATE:

LOSS RATE METHOD
STREAM ROUTING

COMPUTATION SUMMARY SHEET
HYDROLOGY BY UNIT HYDROGRAPH METHOD

SHEET 1 OF 1
SUBWATERSHED
MAJOR WATERSHED
JOB/FILE NO.:

ANALYSIS POINT	SUBWATERSHED AREA (SQ.MI.)	WATERSHED AREA (SQ.MI.)	UNIT HYDROGRAPH COEFFICIENTS: SCS METHOD C_N	SCS METHOD Lag (MIN)	SNYDER'S METHOD C_P	SNYDER'S METHOD T_P (HR)	PEAK DISCHARGES (CFS): Q_5	Q_{10}	Q_{25}	Q_{100}	COMMENTS
PRE-PROJECT											
SQ034e	0.08745	0.08745	94.24	9.10			221.3	268.2	315.2	403.8	
SQ034f	0.01264	0.01264	79.13	6.47			24.5	31.7	39	52.9	
SQ036	0.01742	0.01742	86.57	7.69			39.6	49.4	59.3	77.8	Site
Stone Creek Phase 7		0.08745					58.7	65.1	70.8	136.3	
R_SQ015e		0.22550					204.4	259.9	320.9	460.7	
R_SQ015f		0.24390					207.6	260.2	311.4	419.5	
J_SQ026d		0.21285					203.1	256.5	315.1	486.0	
J_SQ026e		0.22550					204.6	259.8	321.5	477.9	
J_SQ026f		0.24390					212.1	271	338.0	477.1	
J_SQ026g		0.26131					213.9	268.7	322.4	430.7	
J_SQ027		0.27331					216	271.6	327.5	435.4	
J_SQ029		0.42691					282.1	369	450.9	594.4	
J_SQ030		5.98831					1615.2	2059.1	2429.5	3206.1	
J_SQ031		6.08188					1383.1	1692.8	2073.3	2770.9	
J_SQ034		6.26240					1481.1	1823.8	2242.5	3023.6	
J_SQ035		6.28857					1470.8	1801.9	2188.7	2992.0	
J_SQ037		6.40425					1508.7	1837.7	2220.6	2997.4	
J_SQ039		6.50390					1572.7	1879.9	2270.3	3071.6	
J_SQ040		6.76735					1958.3	2276.6	2607.3	3185.4	
J_SQ041		7.03018					1960.1	2335.2	2768.3	3525.4	
POST-PROJECT											
SQ034e	0.09087	0.09087	95.46	9.1			230.3	278.9	327.8	419.8	
SQ034f	0.01191	0.01191	87.10	6.47			22.7	29.5	36.4	49.4	
SQ036	0.01473	0.01473	85.1	7.7			38.7	47.1	55.7	71.7	Proposed site.
Stone Creek Phase 7		0.09087					58.8	64.8	70.2	127.9	
R_SQ015e		0.22818					204.3	259.1	319.4	455.6	
R_SQ015f		0.24658					206.5	257.6	308.0	414.1	
J_SQ026d		0.21627					203.2	256.1	314.4	474.6	
J_SQ026e		0.22818					204.4	259	320.1	469.0	
J_SQ026f		0.24658					212	269.7	336.4	473.6	
J_SQ026g		0.26131					211.9	264.4	316.3	423.3	
J_SQ027		0.27331					213.9	267.1	321.1	428.0	
J_SQ029		0.42691					281.3	365.9	445.7	586.9	
J_SQ030		5.98831					1608.9	2049.6	2417.7	3186.3	
J_SQ031		6.08188					1379.7	1687.2	2063.6	2757.6	
J_SQ034		6.26240					1478.1	1818.6	2233.4	3010.4	
J_SQ035		6.28857					1467.9	1797.2	2180.1	2978.7	
J_SQ037		6.40425					1506.2	1833.2	2212.4	2985.8	
J_SQ039		6.50390					1572.9	1875.9	2262.1	3060.1	
J_SQ040		6.76735					1958.6	2276.8	2607.5	3185.4	
J_SQ041		7.03018					1960.5	2335.4	2768.4	3525.4	

100-YEAR DISCHARGE COMPARISON

PRE-PROJECT		POST-PROJECT		
DESIGN POINT	DISCHARGE	DESIGN POINT	DISCHARGE	DIFFERENCE
SQ034e	403.8	SQ034e	419.8	16.0
SQ034f	52.9	SQ034f	49.4	-3.5
SQ036	77.8	SQ036	71.7	-6.1
Stone Creek Phase 7	136.3	Stone Creek Phase 7	127.9	-8.4
J_SQ026d	486.0	J_SQ026d	474.6	-11.4
J_SQ026e	477.9	J_SQ026e	469.0	-8.9
J_SQ026f	477.1	J_SQ026f	473.6	-3.5
J_SQ026g	430.7	J_SQ026g	423.3	-7.4
J_SQ027	435.4	J_SQ027	428.0	-7.4
J_SQ029	594.4	J_SQ029	586.9	-7.5
J_SQ030	3206.1	J_SQ030	3186.3	-19.8
J_SQ031	2770.9	J_SQ031	2757.6	-13.3
J_SQ034	3023.6	J_SQ034	3010.4	-13.2
J_SQ035	2992.0	J_SQ035	2978.7	-13.3
J_SQ037	2997.4	J_SQ037	2985.8	-11.6
J_SQ039	3071.6	J_SQ039	3060.1	-11.5
J_SQ040	3185.4	J_SQ040	3185.4	0.0
J_SQ041	3525.4	J_SQ041	3525.4	0.0

25-YEAR DISCHARGE COMPARISON

PRE-PROJECT		POST-PROJECT		
DESIGN POINT	DISCHARGE	DESIGN POINT	DISCHARGE	DIFFERENCE
SQ034e	315.2	SQ034e	327.8	12.6
SQ034f	39.0	SQ034f	36.4	-2.6
SQ036	59.3	SQ036	55.7	-3.6
Stone Creek Phase 7	70.8	Stone Creek Phase 7	70.2	-0.6
J_SQ026d	315.1	J_SQ026d	314.4	-0.7
J_SQ026e	321.5	J_SQ026e	320.1	-1.4
J_SQ026f	338.0	J_SQ026f	336.4	-1.6
J_SQ026g	322.4	J_SQ026g	316.3	-6.1
J_SQ027	327.5	J_SQ027	321.1	-6.4
J_SQ029	450.9	J_SQ029	445.7	-5.2
J_SQ030	2429.5	J_SQ030	2417.7	-11.8
J_SQ031	2073.3	J_SQ031	2063.6	-9.7
J_SQ034	2242.5	J_SQ034	2233.4	-9.1
J_SQ035	2188.7	J_SQ035	2180.1	-8.6
J_SQ037	2220.6	J_SQ037	2212.4	-8.2
J_SQ039	2270.3	J_SQ039	2262.1	-8.2
J_SQ040	2607.3	J_SQ040	2607.5	0.2
J_SQ041	2768.3	J_SQ041	2768.4	0.1

10-YEAR DISCHARGE COMPARISON

PRE-PROJECT		POST-PROJECT		
DESIGN POINT	DISCHARGE	DESIGN POINT	DISCHARGE	DIFFERENCE
SQ034e	268.2	SQ034e	278.9	10.7
SQ034f	31.7	SQ034f	29.5	-2.2
SQ036	49.4	SQ036	47.1	-2.3
Stone Creek Phase 7	65.1	Stone Creek Phase 7	64.8	-0.3
J_SQ026d	256.5	J_SQ026d	256.1	-0.4
J_SQ026e	259.8	J_SQ026e	259.0	-0.8
J_SQ026f	271.0	J_SQ026f	269.7	-1.3
J_SQ026g	268.7	J_SQ026g	264.4	-4.3
J_SQ027	271.6	J_SQ027	267.1	-4.5
J_SQ029	369.0	J_SQ029	365.9	-3.1
J_SQ030	2059.1	J_SQ030	2049.6	-9.5
J_SQ031	1692.8	J_SQ031	1687.2	-5.6
J_SQ034	1823.8	J_SQ034	1818.6	-5.2
J_SQ035	1801.9	J_SQ035	1797.2	-4.7
J_SQ037	1837.7	J_SQ037	1833.2	-4.5
J_SQ039	1879.9	J_SQ039	1875.9	-4.0
J_SQ040	2276.6	J_SQ040	2276.8	0.2
J_SQ041	2335.2	J_SQ041	2335.4	0.2

5-YEAR DISCHARGE COMPARISON

PRE-PROJECT		POST-PROJECT		
DESIGN POINT	DISCHARGE	DESIGN POINT	DISCHARGE	DIFFERENCE
SQ034e	221.3	SQ034e	230.3	9.0
SQ034f	24.5	SQ034f	22.7	-1.8
SQ036	39.6	SQ036	38.7	-0.9
Stone Creek Phase 7	58.7	Stone Creek Phase 7	58.8	0.1
J_SQ026d	203.1	J_SQ026d	203.2	0.1
J_SQ026e	204.6	J_SQ026e	204.4	-0.2
J_SQ026f	212.1	J_SQ026f	212.0	-0.1
J_SQ026g	213.9	J_SQ026g	211.9	-2.0
J_SQ027	216.0	J_SQ027	213.9	-2.1
J_SQ029	282.1	J_SQ029	281.3	-0.8
J_SQ030	1615.2	J_SQ030	1608.9	-6.3
J_SQ031	1383.1	J_SQ031	1379.7	-3.4
J_SQ034	1481.1	J_SQ034	1478.1	-3.0
J_SQ035	1470.8	J_SQ035	1467.9	-2.9
J_SQ037	1508.7	J_SQ037	1506.2	-2.5
J_SQ039	1572.7	J_SQ039	1572.9	0.2
J_SQ040	1958.3	J_SQ040	1958.6	0.3
J_SQ041	1960.1	J_SQ041	1960.5	0.4

BANNISTER ENGINEERING
240 North Mitchell Road | Mansfield, TX 76063| 817.842.2094| 817.842.2095 fax
REGISTRATION # F-10599 (TEXAS)

STONE CREEK RETAIL
ROCKWALL, TEXAS

OVERALL PROPOSED DRAINAGE CALCULATIONS

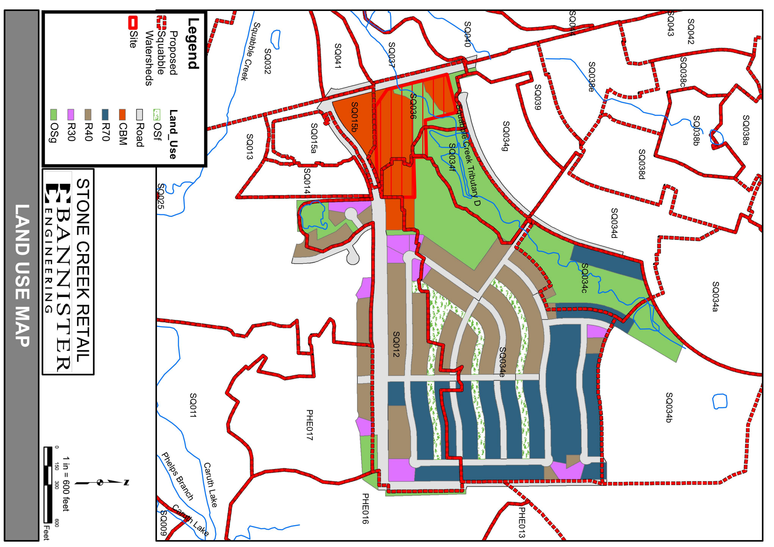
No.	Date	Revision Description

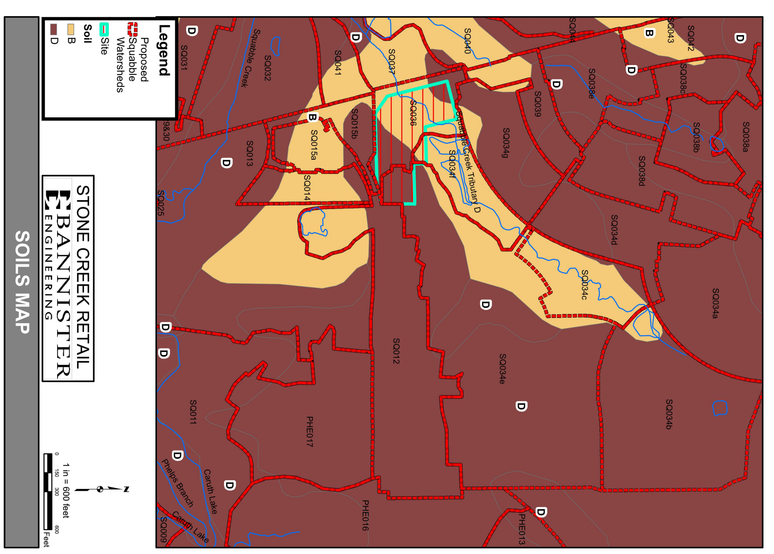
PROJECT NO.: 262--21--001

STATE OF TEXAS
MICHAEL J. MOORE
128498
LICENSED
PROFESSIONAL ENGINEER
3/15/2022

SHEET NUMBER
10

File: B:\Clients\262 (DuWest)\262--21--001 (Stone Creek Retail -- Rockwall)\Flood Study\Overall Proposed Drainage Area Map.dwg || Date Plotted: 3/15/2022 3:22 PM || Plotted By: mmoore





No.	Date	Revision Description

PROJECT NO.: 262-21-001

STONE CREEK RETAIL

ROCKWALL, TEXAS

PROPOSED LAND USE & SOILS MAP

BANNISTER ENGINEERING
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STATE OF TEXAS
MICHAEL J. MOORE
128498
LICENSED PROFESSIONAL ENGINEER

3/15/2022

SHEET NUMBER
11

N

GRAPHIC SCALE

30 0 15 30 60

(IN FEET)
1 inch = 30 ft.

LEGEND

— — —631— — —	EXISTING CONTOUR
—— ——	INEFFECTIVE FLOW LIMIT
——EF100——	EFFECTIVE 100–YEAR FLOODPLAIN
——EX100——	PRE–PROJECT 100–YEAR FLOODPLAIN
————	PRE–PROJECT MDS 100YR FLOODPLAIN

BENCHMARKS

BM#1:
CITY OF ROCKWALL MONUMENT 14

NAVD88
ELEV.=497.13

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ENGINEERING
240 N. Mitchell Road | Mansfield, TX 76063 | 817.842.2094 | 817.842.2095 fax
REGISTRATION # F-10599 (TEXAS)

STONE CREEK RETAIL

ROCKWALL, TEXAS

EXISTING HYDRAULIC WORK MAP

No.	Date	Revision Description

PROJECT NO.: 262-21-001

STATE OF TEXAS
MICHAEL J. MOORE
128498
LICENSED
PROFESSIONAL ENGINEER

3/15/2022

SHEET NUMBER

12

File: B:\Clients\262 (DuWest)\262-21-001 (Stone Creek Retail - Rockwall)\Flood Study\Hydraulic Work Map 262-21-001.dwg || Date Plotted: 3/15/2022 3:25 PM || Plotted By: mmoore

HEC-RAS Plan: Pre-Proj River: RIVER-1 Reach: Reach-1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	4830	10 Year	282.80	519.35	520.87	520.87	521.29	0.025442	5.22	54.13	65.25	1.01
Reach-1	4830	50 Year	380.30	519.35	521.06	521.06	521.56	0.024427	5.65	67.39	72.18	1.02
Reach-1	4830	100 Year	428.80	519.35	521.15	521.15	521.68	0.023297	5.84	73.74	75.26	1.01
Reach-1	4830	500 Year	532.40	519.35	521.32	521.32	521.92	0.021548	6.21	87.15	81.38	0.99
Reach-1	4587	10 Year	282.80	513.00	518.86		518.87	0.000044	0.69	430.47	117.28	0.06
Reach-1	4587	50 Year	380.30	513.00	519.62		519.63	0.000047	0.78	525.32	135.41	0.06
Reach-1	4587	100 Year	428.80	513.00	519.73		519.74	0.000055	0.86	540.77	138.23	0.06
Reach-1	4587	500 Year	532.40	513.00	519.89		519.91	0.000076	1.03	563.88	142.35	0.08
Reach-1	4437	10 Year	221.00	513.00	518.87	513.47	518.87	0.000005	0.24	926.41	201.01	0.02
Reach-1	4437	50 Year	335.20	513.00	519.62	513.61	519.62	0.000008	0.31	1083.55	217.60	0.02
Reach-1	4437	100 Year	390.40	513.00	519.73	513.68	519.73	0.000010	0.35	1108.31	220.27	0.03
Reach-1	4437	500 Year	493.30	513.00	519.90	513.80	519.90	0.000014	0.43	1145.06	224.17	0.03
Reach-1	4338		Culvert									
Reach-1	4291	10 Year	272.80	510.40	512.89	512.89	513.25	0.028885	5.18	66.91	100.17	0.83
Reach-1	4291	50 Year	409.00	510.40	513.15	513.15	513.54	0.028737	5.59	95.01	113.44	0.84
Reach-1	4291	100 Year	479.10	510.40	513.25	513.25	513.66	0.029747	5.86	105.98	116.21	0.87
Reach-1	4291	500 Year	623.10	510.40	513.41	513.41	513.90	0.032533	6.42	124.98	120.85	0.92
Reach-1	4188	10 Year	272.80	508.32	510.93	510.68	511.05	0.017514	3.45	106.19	127.12	0.47
Reach-1	4188	50 Year	409.00	508.32	511.15	510.83	511.31	0.019117	3.91	134.76	130.67	0.50
Reach-1	4188	100 Year	479.10	508.32	511.24	510.92	511.42	0.020174	4.15	146.88	132.32	0.52
Reach-1	4188	500 Year	623.10	508.32	511.41	511.06	511.63	0.021960	4.57	169.63	135.38	0.55
Reach-1	3967	10 Year	272.80	501.10	505.24	505.24	505.74	0.036683	6.03	55.71	58.76	0.68
Reach-1	3967	50 Year	409.00	501.10	505.69	505.59	506.16	0.031380	6.25	85.16	73.06	0.65
Reach-1	3967	100 Year	479.10	501.10	505.89	505.74	506.34	0.028808	6.26	100.58	79.53	0.63
Reach-1	3967	500 Year	623.10	501.10	506.23		506.67	0.025430	6.31	128.62	85.54	0.60
Reach-1	3831	10 Year	272.80	498.10	502.86		503.01	0.011138	3.28	88.38	45.66	0.38
Reach-1	3831	50 Year	409.00	498.10	503.37		503.57	0.012865	3.81	114.80	55.84	0.41
Reach-1	3831	100 Year	479.10	498.10	503.58		503.81	0.013304	4.07	126.49	58.50	0.43
Reach-1	3831	500 Year	623.10	498.10	503.96		504.24	0.013766	4.51	150.16	63.54	0.44
Reach-1	3669	10 Year	272.80	496.18	501.34		501.49	0.009474	3.50	97.14	66.90	0.36

HEC-RAS Plan: Pre-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	3669	50 Year	409.00	496.18	501.93		502.08	0.008351	3.54	138.10	71.48	0.34
Reach-1	3669	100 Year	479.10	496.18	502.19		502.34	0.007954	3.61	156.49	74.02	0.34
Reach-1	3669	500 Year	623.10	496.18	502.64		502.81	0.007470	3.79	191.09	78.93	0.34
Reach-1	3525	10 Year	272.80	495.50	499.43		499.78	0.021679	4.75	58.19	30.05	0.56
Reach-1	3525	50 Year	409.00	495.50	500.17		500.57	0.019240	5.14	84.12	40.85	0.54
Reach-1	3525	100 Year	479.10	495.50	500.48		500.89	0.018499	5.30	97.52	46.09	0.54
Reach-1	3525	500 Year	623.10	495.50	501.03		501.46	0.017060	5.51	125.54	55.36	0.53
Reach-1	3310	10 Year	272.80	492.48	497.61		497.71	0.005232	2.53	107.87	42.71	0.28
Reach-1	3310	50 Year	409.00	492.48	498.32		498.46	0.005731	2.91	140.53	49.72	0.30
Reach-1	3310	100 Year	479.10	492.48	498.62		498.77	0.005955	3.09	155.64	53.10	0.31
Reach-1	3310	500 Year	623.10	492.48	499.13		499.31	0.006414	3.42	184.32	59.50	0.33
Reach-1	3134	10 Year	272.80	491.51	495.61		495.98	0.023895	4.98	58.90	36.49	0.58
Reach-1	3134	50 Year	409.00	491.51	496.17		496.61	0.024250	5.57	81.76	45.51	0.60
Reach-1	3134	100 Year	479.10	491.51	496.42		496.88	0.024163	5.79	93.28	49.58	0.60
Reach-1	3134	500 Year	623.10	491.51	496.87		497.37	0.023271	6.08	117.44	57.20	0.60
Reach-1	2997	10 Year	303.70	491.25	494.56		494.64	0.004711	2.37	138.05	74.88	0.27
Reach-1	2997	50 Year	452.40	491.25	495.04		495.14	0.005251	2.81	174.98	81.53	0.29
Reach-1	2997	100 Year	530.10	491.25	495.24		495.37	0.005483	3.01	192.10	84.62	0.30
Reach-1	2997	500 Year	691.20	491.25	495.56		495.72	0.006290	3.44	220.04	89.43	0.33
Reach-1	2917	10 Year	303.70	491.50	493.20	493.20	493.72	0.062827	6.20	55.28	55.23	0.91
Reach-1	2917	50 Year	452.40	491.50	493.55	493.55	494.16	0.058026	6.86	75.79	63.63	0.90
Reach-1	2917	100 Year	530.10	491.50	493.70	493.70	494.36	0.056110	7.14	86.06	67.44	0.90
Reach-1	2917	500 Year	691.20	491.50	494.20		494.75	0.036216	6.67	122.54	79.52	0.75
Reach-1	2800	10 Year	303.70	490.60	492.98		493.00	0.001201	1.24	250.40	138.69	0.16
Reach-1	2800	50 Year	452.40	490.60	493.42		493.45	0.001325	1.49	312.59	144.40	0.17
Reach-1	2800	100 Year	530.10	490.60	493.65		493.69	0.001313	1.58	347.06	147.47	0.17
Reach-1	2800	500 Year	691.20	490.60	494.14		494.18	0.001236	1.72	419.93	153.76	0.17
Reach-1	2677	10 Year	303.70	490.30	492.21	492.15	492.55	0.032680	5.55	73.28	86.01	0.78
Reach-1	2677	50 Year	452.40	490.30	492.85		493.05	0.013683	4.51	135.96	110.28	0.54
Reach-1	2677	100 Year	530.10	490.30	493.15		493.33	0.009900	4.19	171.01	119.22	0.47
Reach-1	2677	500 Year	691.20	490.30	493.74		493.88	0.005963	3.74	244.98	131.60	0.37

HEC-RAS Plan: Pre-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	2550	10 Year	303.70	489.63	492.32		492.34	0.000270	1.16	303.29	144.04	0.13
Reach-1	2550	50 Year	452.40	489.63	492.86		492.89	0.000305	1.39	384.05	155.11	0.14
Reach-1	2550	100 Year	530.10	489.63	493.14		493.17	0.000306	1.48	429.02	161.23	0.14
Reach-1	2550	500 Year	691.20	489.63	493.72		493.75	0.000297	1.61	525.05	174.12	0.14
Reach-1	2396	10 Year	270.70	489.63	492.28		492.30	0.000248	1.05	270.77	124.71	0.12
Reach-1	2396	50 Year	416.40	489.63	492.81		492.84	0.000306	1.31	339.70	134.32	0.14
Reach-1	2396	100 Year	484.70	489.63	493.10		493.13	0.000303	1.38	382.92	227.01	0.14
Reach-1	2396	500 Year	628.80	489.63	493.68		493.71	0.000268	1.45	517.24	237.64	0.13
Reach-1	2200	10 Year	270.70	489.63	492.19		492.23	0.000539	1.49	183.10	82.84	0.17
Reach-1	2200	50 Year	416.40	489.63	492.70		492.75	0.000670	1.87	225.78	86.47	0.20
Reach-1	2200	100 Year	484.70	489.63	492.98		493.04	0.000663	1.97	250.48	88.51	0.20
Reach-1	2200	500 Year	628.80	489.63	493.56		493.63	0.000616	2.11	326.36	240.58	0.20
Reach-1	2028	10 Year	270.70	487.50	491.66		491.96	0.013209	4.35	62.33	28.40	0.52
Reach-1	2028	50 Year	416.40	487.50	491.65		492.35	0.031961	6.74	61.86	28.33	0.80
Reach-1	2028	100 Year	484.70	487.50	491.58	491.54	492.60	0.047555	8.09	59.92	28.06	0.98
Reach-1	2028	500 Year	628.80	487.50	491.96	491.96	493.18	0.049168	8.89	70.78	29.53	1.01
Reach-1	1973	10 Year	270.70	488.58	491.81		491.81	0.000014	0.30	908.57	290.49	0.03
Reach-1	1973	50 Year	416.40	488.58	491.99		491.99	0.000028	0.44	961.51	291.76	0.04
Reach-1	1973	100 Year	484.70	488.58	492.07		492.08	0.000034	0.50	986.86	292.53	0.05
Reach-1	1973	500 Year	628.80	488.58	492.21		492.22	0.000051	0.62	1027.78	293.77	0.06
Reach-1	1917	10 Year	270.70	489.00	491.58	491.58	491.78	0.026517	5.28	98.54	218.48	0.74
Reach-1	1917	50 Year	416.40	489.00	491.72	491.72	491.96	0.029801	5.93	131.47	239.74	0.80
Reach-1	1917	100 Year	484.70	489.00	491.74	491.74	492.04	0.037775	6.71	134.85	241.82	0.90
Reach-1	1917	500 Year	628.80	489.00	491.90	491.90	492.18	0.033371	6.69	177.20	287.74	0.86
Reach-1	1716	10 Year	270.70	478.80	480.16		480.22	0.008586	2.05	132.35	128.71	0.35
Reach-1	1716	50 Year	416.40	478.80	480.12		480.28	0.023283	3.29	126.91	127.44	0.57
Reach-1	1716	100 Year	484.70	478.80	480.60		480.70	0.008481	2.57	192.05	141.86	0.37
Reach-1	1716	500 Year	628.80	478.80	481.83		481.87	0.001712	1.72	386.84	173.90	0.18
Reach-1	1622	10 Year	279.70	476.80	478.01	478.01	478.38	0.068920	5.10	61.51	85.46	0.91
Reach-1	1622	50 Year	391.30	476.80	479.25		479.33	0.005417	2.47	183.82	112.06	0.29

HEC-RAS Plan: Pre-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1622	100 Year	435.70	476.80	480.38		480.41	0.001314	1.60	322.83	133.82	0.15
Reach-1	1622	500 Year	551.50	476.80	481.76		481.78	0.000527	1.28	524.56	158.65	0.10
Reach-1	1563	10 Year	279.70	474.30	477.19		477.27	0.006180	2.49	133.79	98.40	0.31
Reach-1	1563	50 Year	391.30	474.30	479.21		479.23	0.000678	1.30	371.74	137.85	0.11
Reach-1	1563	100 Year	435.70	474.30	480.36		480.37	0.000289	1.00	543.74	158.28	0.08
Reach-1	1563	500 Year	551.50	474.30	481.75		481.76	0.000167	0.89	775.58	176.12	0.06
Reach-1	1513	10 Year	279.70	474.00	476.90		476.99	0.005430	2.62	127.76	81.22	0.30
Reach-1	1513	50 Year	391.30	474.00	479.17		479.19	0.000616	1.37	366.60	127.71	0.11
Reach-1	1513	100 Year	435.70	474.00	480.35		480.36	0.000283	1.08	529.28	149.60	0.08
Reach-1	1513	500 Year	551.50	474.00	481.74		481.75	0.000174	0.98	756.47	176.81	0.06
Reach-1	1422	10 Year	279.70	471.64	476.67		476.72	0.001809	2.21	188.62	91.69	0.19
Reach-1	1422	50 Year	391.30	471.64	479.14		479.15	0.000308	1.23	469.40	133.97	0.08
Reach-1	1422	100 Year	435.70	471.64	480.33		480.34	0.000164	1.00	638.73	151.14	0.06
Reach-1	1422	500 Year	551.50	471.64	481.73		481.74	0.000115	0.93	864.78	172.08	0.05
Reach-1	1284	10 Year	279.70	472.20	476.60		476.61	0.000421	0.99	346.78	142.03	0.09
Reach-1	1284	50 Year	391.30	472.20	479.13		479.13	0.000090	0.64	796.37	211.62	0.05
Reach-1	1284	100 Year	435.70	472.20	480.32		480.33	0.000051	0.54	1068.22	242.02	0.03
Reach-1	1284	500 Year	551.50	472.20	481.73		481.73	0.000037	0.52	1429.72	273.96	0.03
Reach-1	1202	10 Year	279.70	469.60	476.54	472.82	476.57	0.000389	1.51	219.63	173.52	0.11
Reach-1	1202	50 Year	391.30	469.60	479.10	473.30	479.12	0.000169	1.28	349.96	263.32	0.08
Reach-1	1202	100 Year	435.70	469.60	480.30	473.47	480.32	0.000124	1.20	411.23	290.66	0.07
Reach-1	1202	500 Year	551.50	469.60	481.70	473.88	481.72	0.000117	1.28	482.55	317.93	0.07
Reach-1	1119.5		Culvert									
Reach-1	1076	10 Year	282.00	469.20	472.93	472.93	474.78	0.023479	10.91	25.85	87.56	1.00
Reach-1	1076	50 Year	395.80	469.20	473.87	473.87	476.19	0.021797	12.22	32.39	128.13	1.00
Reach-1	1076	100 Year	440.80	469.20	474.20	474.20	476.71	0.021461	12.70	34.72	140.97	1.00
Reach-1	1076	500 Year	555.70	469.20	474.90	474.90	475.09	0.002633	4.85	190.24	165.71	0.36
Reach-1	1026	10 Year	282.00	465.90	471.01		471.06	0.000698	1.99	181.74	85.91	0.17
Reach-1	1026	50 Year	395.80	465.90	471.24		471.32	0.001080	2.56	202.38	93.46	0.22
Reach-1	1026	100 Year	440.80	465.90	471.40		471.49	0.001136	2.69	217.83	98.73	0.22

HEC-RAS Plan: Pre-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1026	500 Year	555.70	465.90	471.51		471.65	0.001612	3.26	229.14	102.43	0.27
Reach-1	981	10 Year	282.00	465.70	470.99		471.03	0.000553	1.85	200.66	97.08	0.16
Reach-1	981	50 Year	395.80	465.70	471.20		471.28	0.000872	2.40	222.73	105.91	0.20
Reach-1	981	100 Year	440.80	465.70	471.36		471.44	0.000921	2.52	240.09	112.38	0.20
Reach-1	981	500 Year	555.70	465.70	471.46		471.58	0.001331	3.07	251.04	116.27	0.25
Reach-1	918	10 Year	282.00	465.30	470.98		471.00	0.000248	1.24	310.87	138.11	0.10
Reach-1	918	50 Year	395.80	465.30	471.20		471.23	0.000390	1.61	341.55	145.46	0.13
Reach-1	918	100 Year	440.80	465.30	471.36		471.39	0.000411	1.69	365.21	150.88	0.14
Reach-1	918	500 Year	555.70	465.30	471.45		471.50	0.000595	2.06	379.59	154.08	0.17
Reach-1	833	10 Year	282.00	464.10	470.97	468.82	470.98	0.000154	1.01	445.86	201.91	0.07
Reach-1	833	50 Year	395.80	464.10	471.18	469.99	471.19	0.000276	1.38	489.21	211.73	0.09
Reach-1	833	100 Year	440.80	464.10	471.34	470.27	471.35	0.000286	1.43	523.46	217.95	0.09
Reach-1	833	500 Year	555.70	464.10	471.43	470.27	471.45	0.000414	1.73	542.53	221.34	0.11
Reach-1	817.5		Culvert									
Reach-1	802	10 Year	282.00	463.92	467.34	466.81	467.44	0.005690	3.52	134.62	107.33	0.34
Reach-1	802	50 Year	395.80	463.92	467.74	466.81	467.85	0.005549	3.76	182.16	128.59	0.34
Reach-1	802	100 Year	440.80	463.92	467.88	466.82	467.99	0.005497	3.83	200.36	135.85	0.35
Reach-1	802	500 Year	555.70	463.92	468.18	467.06	468.29	0.005376	3.99	243.25	146.09	0.35
Reach-1	726	10 Year	282.00	463.60	466.81		466.93	0.008483	2.84	107.79	76.39	0.34
Reach-1	726	50 Year	395.80	463.60	467.17		467.32	0.008976	3.24	138.43	91.08	0.36
Reach-1	726	100 Year	440.80	463.60	467.30		467.46	0.009085	3.37	150.37	96.20	0.37
Reach-1	726	500 Year	555.70	463.60	467.56		467.75	0.009732	3.71	176.62	106.60	0.38
Reach-1	635	10 Year	282.00	462.00	464.69	464.69	465.28	0.055775	6.34	49.72	48.27	0.84
Reach-1	635	50 Year	395.80	462.00	465.06	465.06	465.67	0.048502	6.71	69.95	61.60	0.81
Reach-1	635	100 Year	440.80	462.00	465.18	465.18	465.81	0.047404	6.87	77.23	65.74	0.81
Reach-1	635	500 Year	555.70	462.00	465.48	465.45	466.10	0.041128	6.97	99.15	76.87	0.77
Reach-1	619	10 Year	282.00	460.00	464.25		464.55	0.018752	4.45	64.29	35.08	0.50
Reach-1	619	50 Year	395.80	460.00	464.66		465.07	0.020718	5.19	82.06	50.78	0.54
Reach-1	619	100 Year	440.80	460.00	464.80		465.24	0.021169	5.42	89.57	56.11	0.55
Reach-1	619	500 Year	555.70	460.00	465.11		465.61	0.022059	5.90	108.69	67.81	0.57

HEC-RAS Plan: Pre-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	495	10 Year	282.00	458.30	462.20		462.37	0.016112	3.28	86.59	60.43	0.45
Reach-1	495	50 Year	395.80	458.30	462.56		462.77	0.015970	3.72	111.07	76.60	0.46
Reach-1	495	100 Year	440.80	458.30	462.67		462.90	0.016008	3.87	120.53	82.00	0.47
Reach-1	495	500 Year	555.70	458.30	462.94		463.20	0.016084	4.20	144.27	94.20	0.48
Reach-1	393	10 Year	282.00	456.95	460.91	459.87	461.07	0.010542	3.50	103.01	95.31	0.39
Reach-1	393	50 Year	395.80	456.95	461.17	460.61	461.37	0.012367	4.04	129.30	106.93	0.42
Reach-1	393	100 Year	440.80	456.95	461.26	460.74	461.48	0.012933	4.22	139.10	110.95	0.44
Reach-1	393	500 Year	555.70	456.95	461.45	460.94	461.71	0.014548	4.67	160.99	119.45	0.47

HEC-RAS Plan: PrePro River: RIVER-1 Reach: Reach-1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	4830	10yr	294.00	519.35	520.89	520.89	521.32	0.025262	5.26	55.84	66.19	1.01
Reach-1	4830	50yr	392.00	519.35	521.08	521.08	521.59	0.024217	5.70	68.85	72.90	1.01
Reach-1	4830	100yr	441.00	519.35	521.17	521.17	521.71	0.022900	5.88	75.49	76.09	1.00
Reach-1	4830	500yr	544.00	519.35	521.34	521.34	521.94	0.021345	6.25	88.70	82.06	0.99
Reach-1	4587	10yr	294.00	513.00	518.52		518.53	0.000062	0.78	391.12	110.37	0.06
Reach-1	4587	50yr	392.00	513.00	519.59		519.60	0.000050	0.81	521.85	134.77	0.06
Reach-1	4587	100yr	441.00	513.00	519.73		519.74	0.000058	0.89	540.59	138.20	0.07
Reach-1	4587	500yr	544.00	513.00	519.89		519.90	0.000080	1.06	563.04	142.20	0.08
Reach-1	4437	10yr	204.00	513.00	518.52	513.44	518.52	0.000006	0.24	857.91	195.92	0.02
Reach-1	4437	50yr	324.00	513.00	519.59	513.60	519.59	0.000007	0.30	1078.05	217.00	0.02
Reach-1	4437	100yr	378.00	513.00	519.73	513.67	519.73	0.000009	0.34	1108.10	220.24	0.03
Reach-1	4437	500yr	481.00	513.00	519.89	513.78	519.89	0.000013	0.42	1143.84	224.05	0.03
Reach-1	4338		Culvert									
Reach-1	4291	10yr	204.00	510.40	512.70	512.70	513.05	0.029995	5.00	48.89	80.77	0.83
Reach-1	4291	50yr	324.00	510.40	513.01	513.01	513.37	0.028699	5.32	78.82	109.22	0.83
Reach-1	4291	100yr	378.00	510.40	513.11	513.11	513.48	0.028395	5.47	89.70	112.07	0.84
Reach-1	4291	500yr	481.00	510.40	513.25	513.25	513.67	0.029759	5.87	106.28	116.28	0.87
Reach-1	4188	10yr	204.00	508.32	510.82	510.58	510.91	0.014858	3.04	92.35	125.82	0.43
Reach-1	4188	50yr	324.00	508.32	511.02	510.75	511.15	0.017870	3.61	118.18	128.36	0.48
Reach-1	4188	100yr	378.00	508.32	511.11	510.81	511.25	0.018552	3.80	129.23	129.90	0.49
Reach-1	4188	500yr	481.00	508.32	511.25	510.92	511.43	0.019607	4.11	148.64	132.56	0.51
Reach-1	3967	10yr	204.00	501.10	504.78	504.65	505.36	0.052446	6.25	34.82	27.40	0.79
Reach-1	3967	50yr	324.00	501.10	505.42	505.39	505.91	0.035153	6.18	66.38	64.31	0.68
Reach-1	3967	100yr	378.00	501.10	505.59	505.53	506.07	0.032930	6.25	78.06	69.88	0.66
Reach-1	3967	500yr	481.00	501.10	505.88	505.74	506.35	0.029893	6.36	99.39	79.05	0.64
Reach-1	3831	10yr	204.00	498.10	502.49		502.61	0.010147	2.94	72.67	39.61	0.35
Reach-1	3831	50yr	324.00	498.10	503.09		503.26	0.012213	3.45	99.70	52.00	0.40
Reach-1	3831	100yr	378.00	498.10	503.29		503.47	0.012461	3.66	110.00	54.71	0.41
Reach-1	3831	500yr	481.00	498.10	503.62		503.84	0.012686	4.01	128.94	59.04	0.42
Reach-1	3669	10yr	216.00	496.18	500.99		501.14	0.009548	3.34	74.48	44.15	0.36

HEC-RAS Plan: PrePro River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	3669	50yr	326.00	496.18	501.59		501.74	0.008938	3.51	114.00	68.82	0.35
Reach-1	3669	100yr	386.00	496.18	501.84		501.99	0.008505	3.53	131.56	70.77	0.35
Reach-1	3669	500yr	505.00	496.18	502.27		502.43	0.007839	3.64	162.96	74.97	0.34
Reach-1	3525	10yr	216.00	495.50	499.07		499.38	0.022868	4.49	48.18	24.96	0.56
Reach-1	3525	50yr	326.00	495.50	499.77		500.13	0.019984	4.88	68.98	34.72	0.54
Reach-1	3525	100yr	386.00	495.50	500.08		500.46	0.019059	5.04	80.53	39.33	0.54
Reach-1	3525	500yr	505.00	495.50	500.60		501.01	0.017939	5.31	103.23	48.15	0.53
Reach-1	3310	10yr	216.00	492.48	497.18		497.27	0.005301	2.40	90.07	39.01	0.28
Reach-1	3310	50yr	326.00	492.48	497.85		497.97	0.005863	2.76	118.16	44.71	0.30
Reach-1	3310	100yr	386.00	492.48	498.15		498.28	0.006083	2.93	131.91	47.69	0.31
Reach-1	3310	500yr	505.00	492.48	498.64		498.80	0.006497	3.24	156.69	53.33	0.32
Reach-1	3134	10yr	216.00	491.51	495.66	494.61	495.89	0.012613	3.91	60.75	37.29	0.43
Reach-1	3134	50yr	326.00	491.51	496.26	495.20	496.53	0.012128	4.41	85.94	47.03	0.44
Reach-1	3134	100yr	386.00	491.51	496.48	495.47	496.78	0.012739	4.72	96.61	50.70	0.45
Reach-1	3134	500yr	505.00	491.51	496.89	495.92	497.24	0.013071	5.16	118.84	57.61	0.47
Reach-1	2997	10yr	253.00	492.00	493.78	493.08	493.96	0.015133	3.44	73.44	71.25	0.46
Reach-1	2997	50yr	378.00	492.00	494.08	493.39	494.38	0.019804	4.38	86.20	75.75	0.54
Reach-1	2997	100yr	448.00	492.00	494.40	493.56	494.71	0.017301	4.51	99.41	78.58	0.52
Reach-1	2997	500yr	589.00	492.00	494.99	493.86	495.34	0.014274	4.75	124.10	83.87	0.49
Reach-1	2957		Culvert									
Reach-1	2917	10yr	253.00	491.30	492.87	492.87	493.55	0.081943	6.60	38.35	28.83	1.01
Reach-1	2917	50yr	378.00	491.30	493.40	493.40	494.01	0.050474	6.46	63.58	69.46	0.84
Reach-1	2917	100yr	448.00	491.30	493.56	493.56	494.23	0.050717	6.84	71.38	72.73	0.85
Reach-1	2917	500yr	589.00	491.30	494.15		494.71	0.030046	6.25	101.12	87.84	0.68
Reach-1	2800	10yr	253.00	490.60	492.81		492.83	0.001119	1.13	228.22	136.59	0.15
Reach-1	2800	50yr	378.00	490.60	493.24		493.27	0.001205	1.35	287.41	142.11	0.16
Reach-1	2800	100yr	448.00	490.60	493.54		493.57	0.001088	1.40	330.88	146.04	0.16
Reach-1	2800	500yr	589.00	490.60	494.16		494.19	0.000874	1.45	423.65	154.07	0.14
Reach-1	2677	10yr	253.00	490.30	492.20		492.44	0.023691	4.70	72.10	85.48	0.67
Reach-1	2677	50yr	378.00	490.30	492.73		492.91	0.012461	4.15	123.25	105.81	0.51

HEC-RAS Plan: PrePro River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	2677	100yr	448.00	490.30	493.16		493.29	0.006924	3.51	172.25	119.43	0.39
Reach-1	2677	500yr	589.00	490.30	493.91		494.00	0.003358	2.91	267.59	135.16	0.28
Reach-1	2550	10yr	253.00	489.63	492.27		492.28	0.000201	0.98	296.19	143.03	0.11
Reach-1	2550	50yr	378.00	489.63	492.75		492.77	0.000242	1.21	366.83	152.82	0.12
Reach-1	2550	100yr	448.00	489.63	493.16		493.18	0.000216	1.24	430.98	161.50	0.12
Reach-1	2550	500yr	589.00	489.63	493.90		493.92	0.000184	1.31	556.55	178.14	0.11
Reach-1	2396	10yr	257.00	489.63	492.23		492.25	0.000238	1.02	264.93	123.86	0.12
Reach-1	2396	50yr	386.00	489.63	492.70		492.73	0.000298	1.27	324.90	132.31	0.13
Reach-1	2396	100yr	486.00	489.63	493.11		493.14	0.000301	1.38	385.41	227.21	0.14
Reach-1	2396	500yr	679.00	489.63	493.85		493.88	0.000260	1.48	559.40	240.89	0.13
Reach-1	2200	10yr	257.00	489.63	492.15		492.18	0.000516	1.44	179.56	82.53	0.17
Reach-1	2200	50yr	386.00	489.63	492.59		492.64	0.000654	1.81	216.59	85.70	0.20
Reach-1	2200	100yr	486.00	489.63	492.99		493.05	0.000658	1.97	251.51	88.59	0.20
Reach-1	2200	500yr	679.00	489.63	493.74		493.81	0.000588	2.13	369.71	243.57	0.20
Reach-1	2028	10yr	257.00	487.50	491.66		491.93	0.011925	4.13	62.30	28.39	0.49
Reach-1	2028	50yr	386.00	487.50	491.68		492.27	0.026230	6.15	62.84	28.47	0.73
Reach-1	2028	100yr	486.00	487.50	491.55	491.54	492.60	0.049798	8.23	59.09	27.95	1.00
Reach-1	2028	500yr	679.00	487.50	492.11	492.11	493.37	0.047784	9.02	75.36	30.13	1.00
Reach-1	1973	10yr	257.00	488.58	491.79		491.79	0.000013	0.29	904.21	290.41	0.03
Reach-1	1973	50yr	386.00	488.58	491.97		491.97	0.000024	0.41	955.18	291.56	0.04
Reach-1	1973	100yr	486.00	488.58	492.06		492.07	0.000035	0.50	983.21	292.42	0.05
Reach-1	1973	500yr	679.00	488.58	492.27		492.27	0.000056	0.66	1043.77	294.25	0.06
Reach-1	1917	10yr	260.00	489.00	491.57	491.57	491.77	0.026164	5.21	95.95	216.72	0.73
Reach-1	1917	50yr	398.00	489.00	491.71	491.71	491.94	0.028610	5.79	129.01	238.21	0.78
Reach-1	1917	100yr	478.00	489.00	491.74	491.74	492.03	0.035162	6.50	137.12	243.20	0.87
Reach-1	1917	500yr	692.00	489.00	491.95	491.95	492.23	0.032279	6.72	194.34	303.52	0.85
Reach-1	1716	10yr	260.00	478.80	480.14		480.20	0.008519	2.01	129.42	128.02	0.35
Reach-1	1716	50yr	398.00	478.80	480.18		480.31	0.017369	2.95	135.10	129.34	0.50
Reach-1	1716	100yr	478.00	478.80	480.55		480.65	0.009338	2.63	184.52	140.27	0.38
Reach-1	1716	500yr	692.00	478.80	481.79		481.84	0.002180	1.92	380.38	173.00	0.21

HEC-RAS Plan: PrePro River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1622	10yr	271.00	476.80	478.00	478.00	478.35	0.068780	5.04	60.23	85.12	0.91
Reach-1	1622	50yr	418.00	476.80	478.93		479.06	0.011545	3.24	148.49	105.44	0.42
Reach-1	1622	100yr	477.00	476.80	480.26		480.30	0.001811	1.84	307.53	131.74	0.18
Reach-1	1622	500yr	652.00	476.80	481.69		481.72	0.000779	1.54	514.15	157.46	0.13
Reach-1	1563	10yr	271.00	474.30	477.12		477.20	0.006768	2.54	126.60	96.73	0.32
Reach-1	1563	50yr	418.00	474.30	478.85		478.88	0.001139	1.58	323.68	130.90	0.15
Reach-1	1563	100yr	477.00	474.30	480.24		480.26	0.000383	1.14	524.68	156.61	0.09
Reach-1	1563	500yr	652.00	474.30	481.68		481.69	0.000244	1.07	763.30	175.19	0.07
Reach-1	1513	10yr	271.00	474.00	476.79		476.88	0.006234	2.71	118.55	78.51	0.32
Reach-1	1513	50yr	418.00	474.00	478.79		478.83	0.001020	1.67	319.52	120.48	0.14
Reach-1	1513	100yr	477.00	474.00	480.22		480.24	0.000373	1.22	510.61	147.20	0.09
Reach-1	1513	500yr	652.00	474.00	481.67		481.68	0.000255	1.17	743.41	175.33	0.08
Reach-1	1422	10yr	271.00	471.64	476.52		476.57	0.002071	2.31	174.97	89.00	0.20
Reach-1	1422	50yr	418.00	471.64	478.74		478.76	0.000485	1.48	417.13	128.04	0.10
Reach-1	1422	100yr	477.00	471.64	480.20		480.21	0.000214	1.13	619.10	149.19	0.07
Reach-1	1422	500yr	652.00	471.64	481.65		481.66	0.000168	1.12	851.24	170.89	0.06
Reach-1	1284	10yr	271.00	472.20	476.44		476.45	0.000472	1.02	324.24	137.13	0.09
Reach-1	1284	50yr	418.00	472.20	478.72		478.73	0.000139	0.76	712.52	200.73	0.06
Reach-1	1284	100yr	477.00	472.20	480.19		480.20	0.000067	0.61	1036.24	238.99	0.04
Reach-1	1284	500yr	652.00	472.20	481.64		481.65	0.000054	0.62	1407.56	272.11	0.04
Reach-1	1202	10yr	269.00	469.60	476.38	472.78	476.41	0.000407	1.51	211.29	165.51	0.11
Reach-1	1202	50yr	375.00	469.60	478.69	473.25	478.71	0.000190	1.31	329.12	253.51	0.08
Reach-1	1202	100yr	431.00	469.60	480.16	473.46	480.18	0.000128	1.20	404.43	288.13	0.07
Reach-1	1202	500yr	548.00	469.60	481.62	473.87	481.64	0.000119	1.28	478.42	316.31	0.07
Reach-1	1119.5		Culvert									
Reach-1	1076	10yr	269.00	469.20	472.81	472.81	474.61	0.023811	10.75	25.02	82.43	1.00
Reach-1	1076	50yr	375.00	469.20	473.70	473.70	475.94	0.022081	12.00	31.24	120.98	1.00
Reach-1	1076	100yr	431.00	469.20	474.14	474.14	476.60	0.021346	12.56	34.31	138.88	1.00
Reach-1	1076	500yr	548.00	469.20	474.90	474.90	475.08	0.002560	4.79	190.24	165.71	0.35
Reach-1	1026	10yr	269.00	468.01	470.55		470.84	0.008148	4.61	67.07	40.86	0.54

HEC-RAS Plan: PrePro River: RIVER-1 Reach: Reach-1 (Continued)

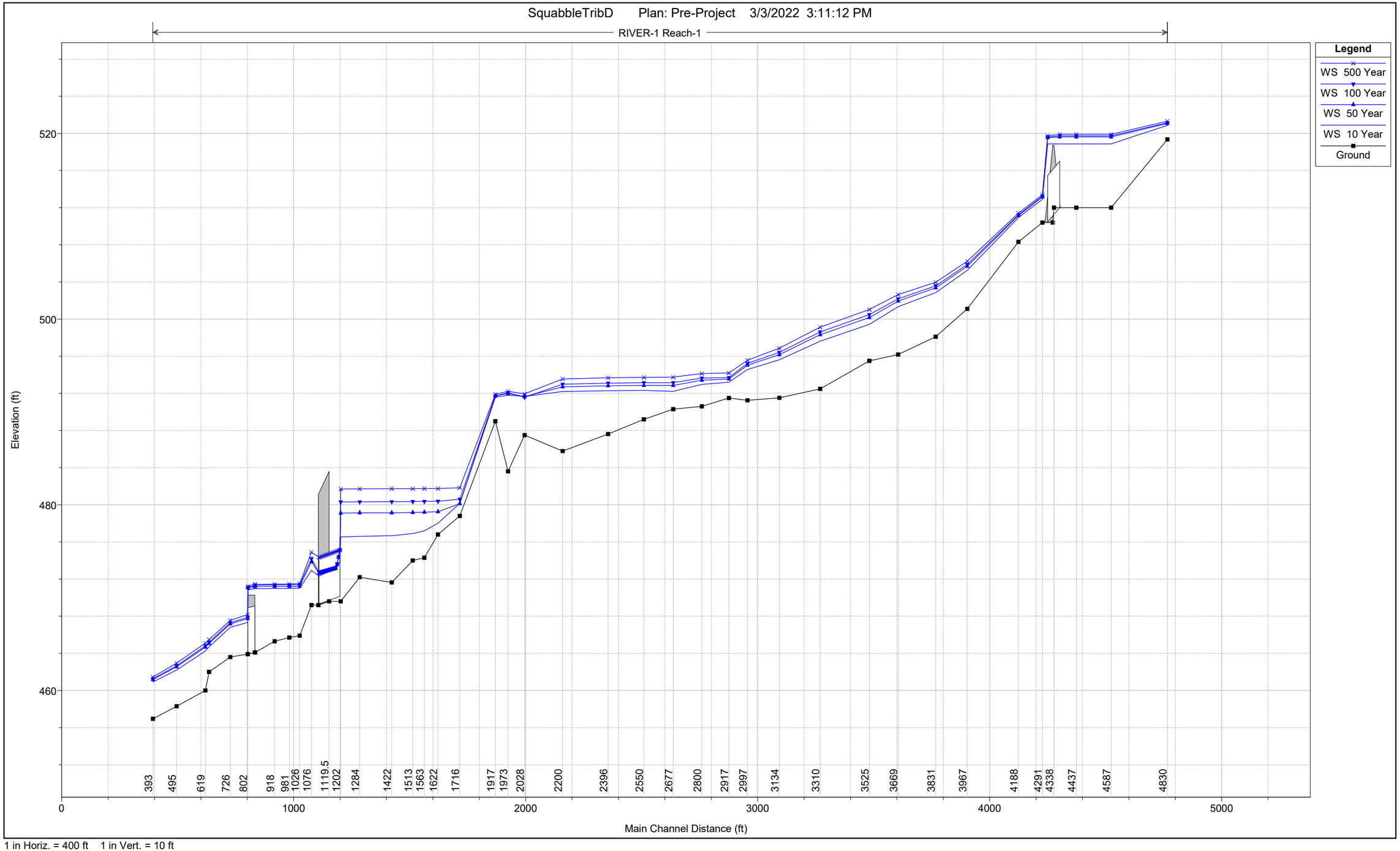
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1026	50yr	375.00	468.01	471.06		471.40	0.007356	5.02	89.94	49.60	0.53
Reach-1	1026	100yr	431.00	468.01	471.28		471.65	0.007386	5.29	102.34	60.78	0.54
Reach-1	1026	500yr	548.00	468.01	471.77		472.13	0.006299	5.40	135.07	74.70	0.51
Reach-1	981	10yr	269.00	466.62	470.21		470.53	0.006361	5.10	69.91	40.24	0.50
Reach-1	981	50yr	375.00	466.62	470.72		471.09	0.006509	5.69	92.99	51.58	0.52
Reach-1	981	100yr	431.00	466.62	470.96		471.34	0.006384	5.87	106.17	56.75	0.52
Reach-1	981	500yr	548.00	466.62	471.45		471.85	0.006103	6.20	137.31	72.90	0.52
Reach-1	918	10yr	269.00	466.33	468.92	468.92	469.74	0.028085	7.33	38.32	25.93	0.96
Reach-1	918	50yr	375.00	466.33	469.37	469.37	470.32	0.024711	7.97	51.00	30.52	0.93
Reach-1	918	100yr	431.00	466.33	469.58	469.58	470.59	0.023794	8.29	57.53	33.49	0.93
Reach-1	918	500yr	548.00	466.33	469.89	469.89	471.09	0.024617	9.12	68.90	39.29	0.96
Reach-1	833	10yr	272.00	464.91	466.89	466.65	467.31	0.027049	5.35	53.41	38.55	0.72
Reach-1	833	50yr	381.00	464.91	467.47	466.98	467.87	0.017667	5.26	77.05	41.93	0.61
Reach-1	833	100yr	435.00	464.91	467.71	467.12	468.11	0.015799	5.31	87.02	42.81	0.59
Reach-1	833	500yr	551.00	464.91	468.13	467.42	468.57	0.013973	5.53	105.25	44.49	0.57
Reach-1	817.5		Culvert									
Reach-1	802	10yr	272.00	464.24	467.04	465.67	467.13	0.004201	2.47	110.21	61.19	0.28
Reach-1	802	50yr	381.00	464.24	467.48	465.93	467.61	0.004704	2.93	130.42	63.80	0.31
Reach-1	802	100yr	435.00	464.24	467.66	466.05	467.81	0.004994	3.14	138.70	64.90	0.32
Reach-1	802	500yr	551.00	464.24	467.97	466.29	468.17	0.005774	3.60	153.04	66.86	0.35
Reach-1	726	10yr	272.00	462.44	466.53		466.77	0.013324	4.39	78.09	54.33	0.44
Reach-1	726	50yr	381.00	462.44	466.93		467.21	0.014147	4.91	101.82	69.81	0.46
Reach-1	726	100yr	435.00	462.44	467.09		467.39	0.014472	5.12	114.62	80.77	0.47
Reach-1	726	500yr	551.00	462.44	467.40		467.73	0.014522	5.42	141.16	88.40	0.48
Reach-1	635	10yr	272.00	462.11	465.30		465.51	0.014316	4.09	82.83	61.78	0.45
Reach-1	635	50yr	381.00	462.11	465.77		465.99	0.012398	4.27	114.92	74.45	0.43
Reach-1	635	100yr	435.00	462.11	465.96		466.18	0.011988	4.37	129.07	78.40	0.43
Reach-1	635	500yr	551.00	462.11	466.31		466.54	0.011437	4.57	157.45	85.54	0.43
Reach-1	619	10yr	272.00	461.54	464.89	464.10	465.25	0.019001	5.02	63.01	41.89	0.53
Reach-1	619	50yr	381.00	461.54	465.31	464.70	465.74	0.020157	5.67	83.70	56.89	0.56

HEC-RAS Plan: PrePro River: RIVER-1 Reach: Reach-1 (Continued)

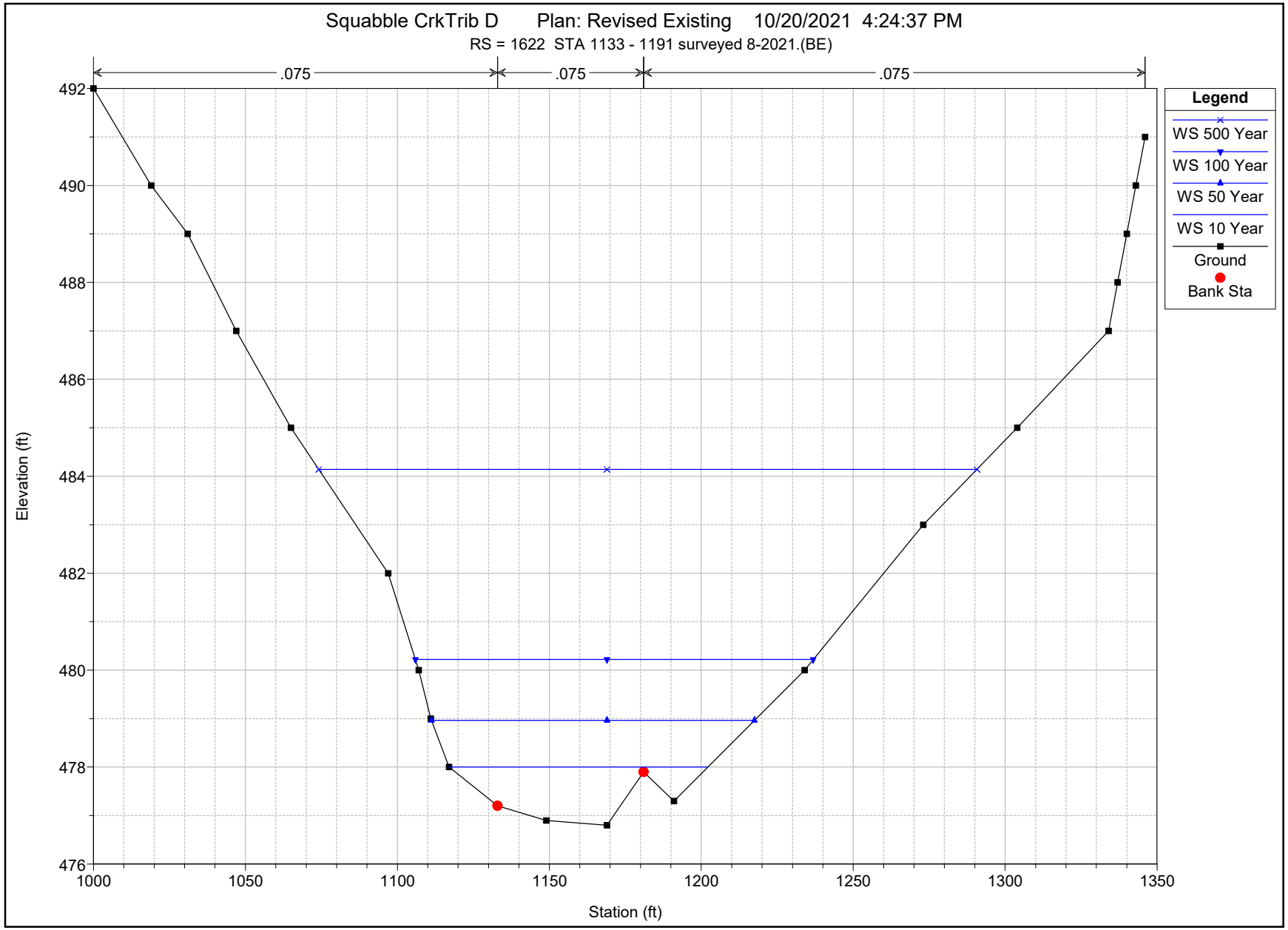
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	619	100yr	435.00	461.54	465.47	464.86	465.93	0.020659	5.93	93.35	62.12	0.57
Reach-1	619	500yr	551.00	461.54	465.39	465.39	466.20	0.037367	7.85	88.45	59.65	0.76
Reach-1	495	10yr	369.00	459.66	461.52	461.52	462.17	0.085097	6.45	57.34	51.90	0.99
Reach-1	495	50yr	524.00	459.66	461.88	461.88	462.67	0.075528	7.14	74.31	56.05	0.98
Reach-1	495	100yr	594.00	459.66	462.03	462.03	462.88	0.072303	7.40	81.84	59.03	0.97
Reach-1	495	500yr	749.00	459.66	462.90	462.34	463.46	0.029453	6.13	126.39	69.80	0.66
Reach-1	400		Culvert									
Reach-1	393	10yr	369.00	458.16	460.96	460.96	461.66	0.054951	7.33	58.69	41.27	0.87
Reach-1	393	50yr	524.00	458.16	461.36	461.36	462.20	0.053649	8.09	75.67	43.86	0.88
Reach-1	393	100yr	594.00	458.16	461.51	461.51	462.43	0.054301	8.44	82.25	44.85	0.89
Reach-1	393	500yr	749.00	458.16	461.85	461.85	462.87	0.052576	8.97	97.89	47.23	0.90

SquabbleTribD Plan: Pre-Project 3/3/2022 3:11:12 PM

RIVER-1 Reach-1



1 in Horiz. = 400 ft 1 in Vert. = 10 ft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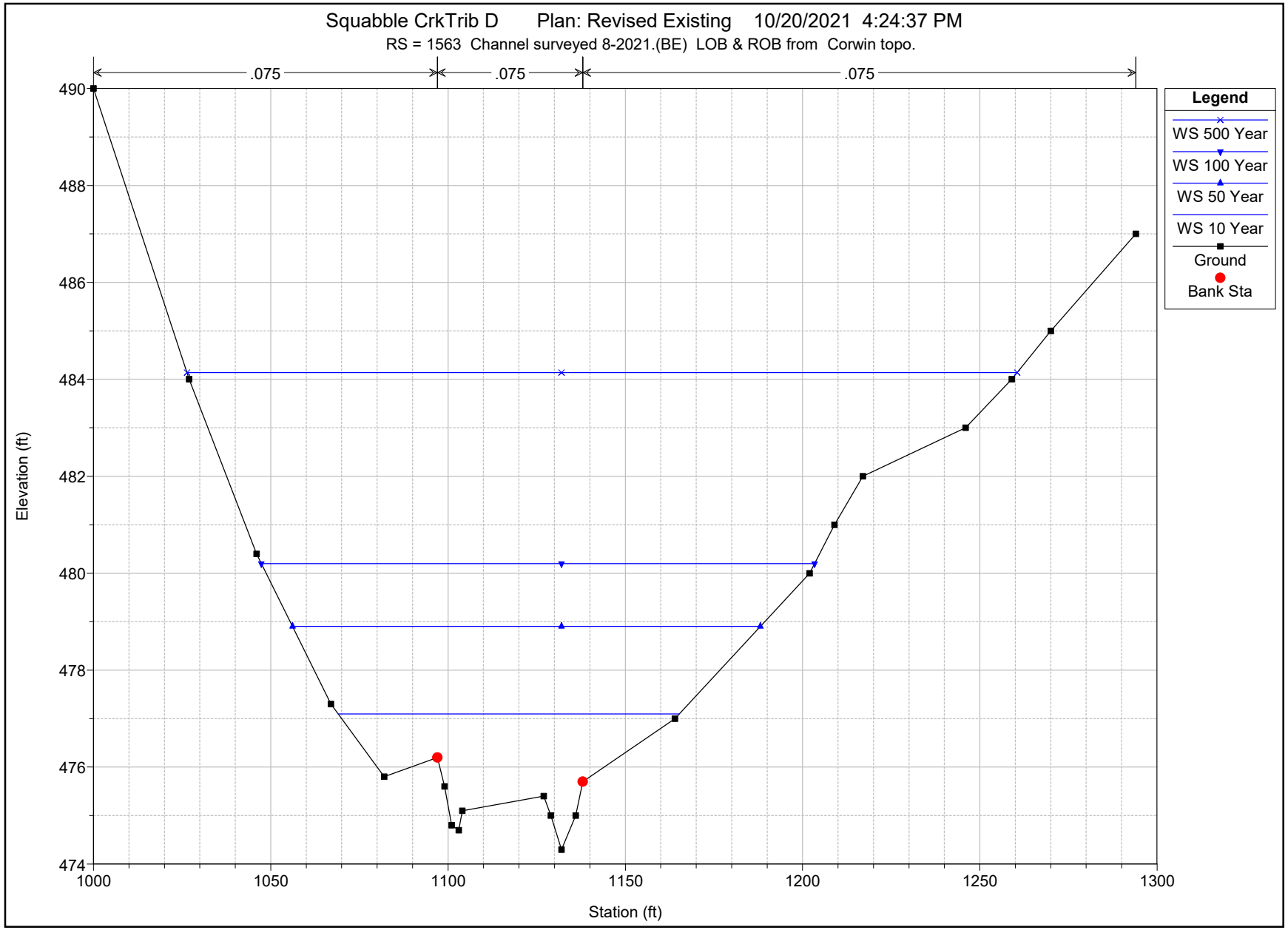
RS = 1622 STA 1133 - 1191 surveyed 8-2021.(BE)
.075
.075
.075
Legend
WS 500 Year
WS 100 Year
WS 50 Year
WS 10 Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
492
490
488
486
484
482
480
478
476
1000
1050
1100
1150
1200
1250
1300
1350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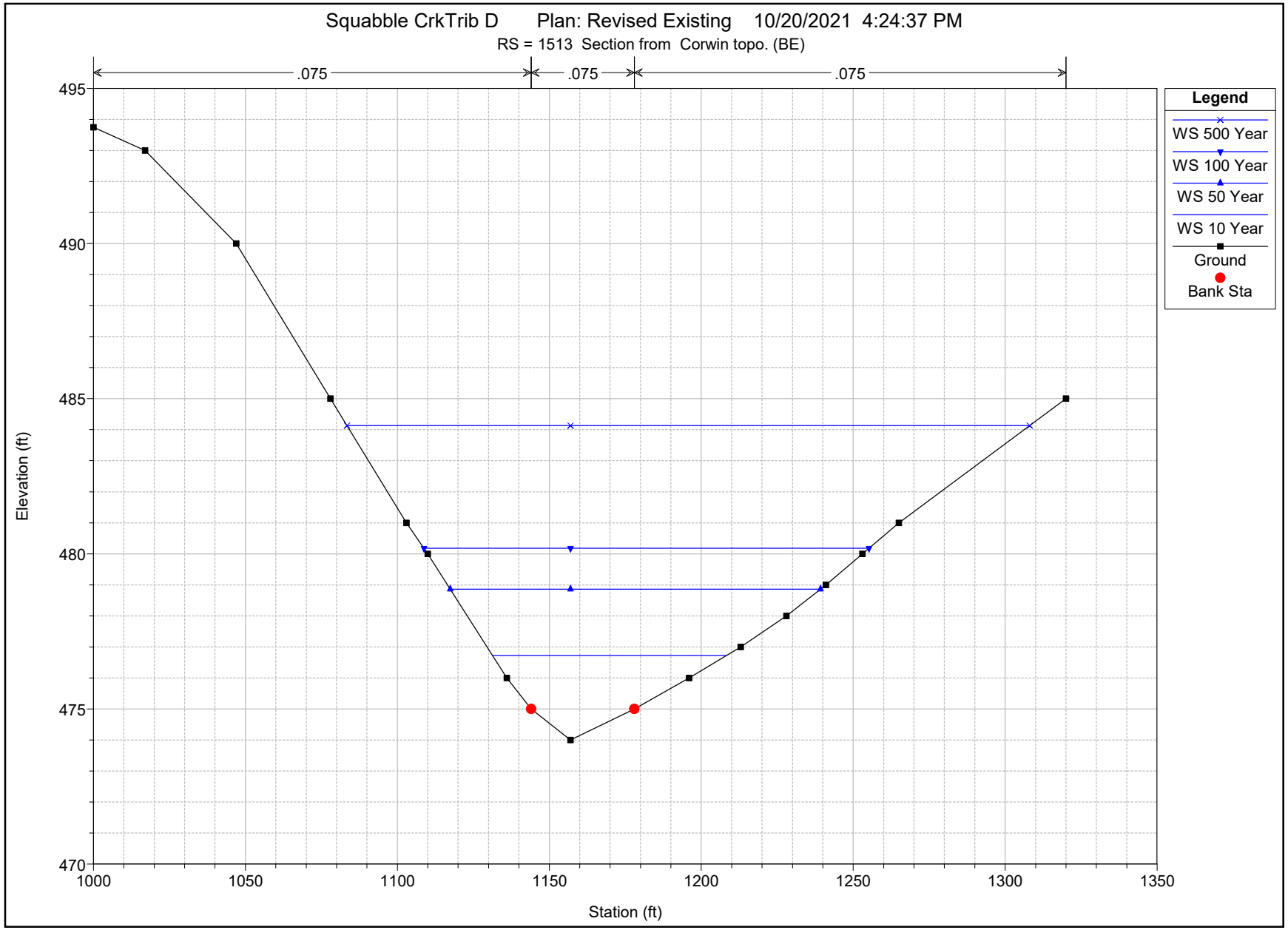
.075
.075
.075
Legend
WS 500 Year
WS 100 Year
WS 50 Year
WS 10 Year
Ground
Bank Sta
Elevation (ft)
490
488
486
484
482
480
478
476
474
1000
1050
1100
1150
1200
1250
1300
Station (ft)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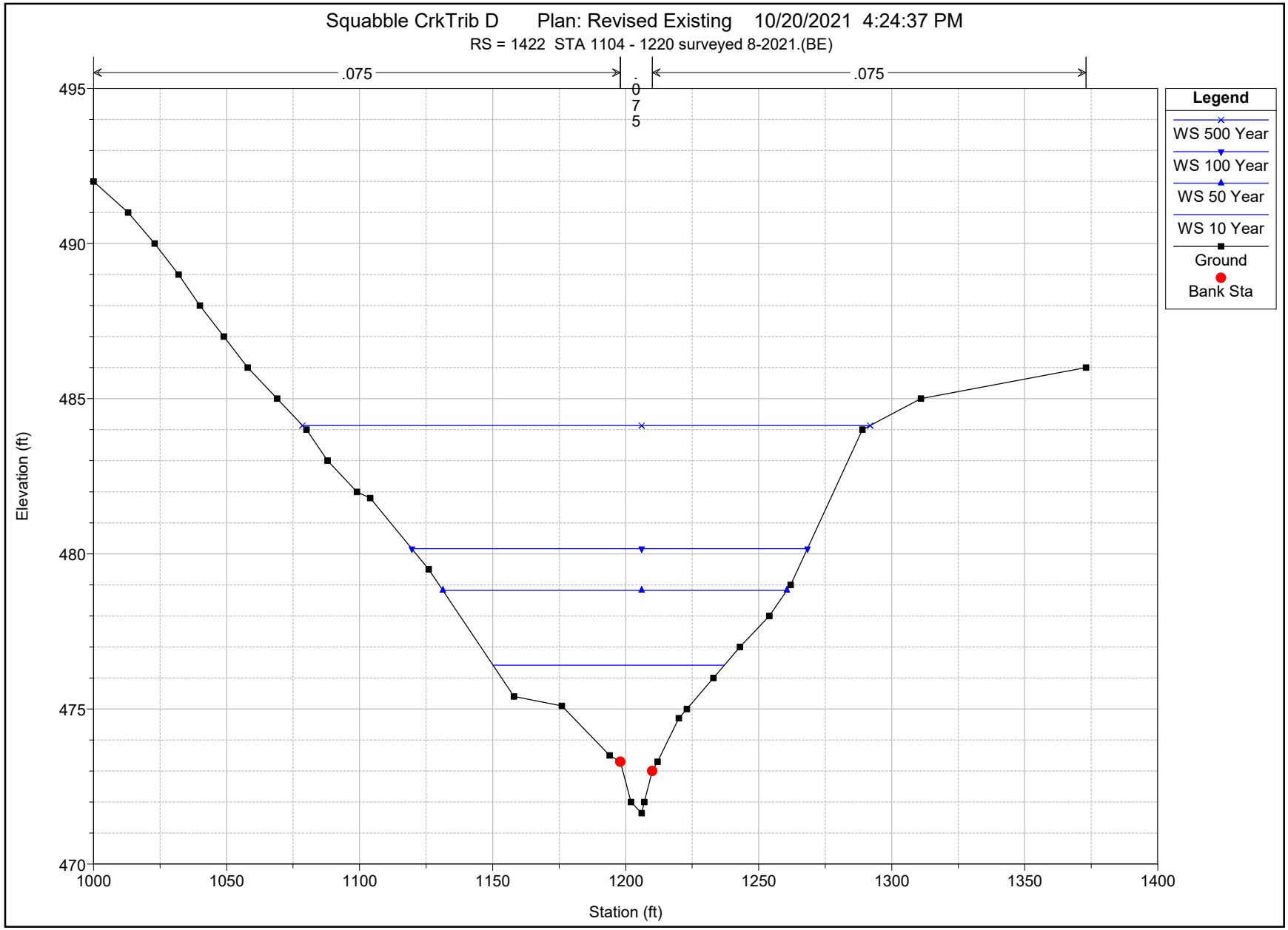
.075
.075
.075
Legend
WS 500 Year
WS 100 Year
WS 50 Year
WS 10 Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
495
490
485
480
475
470
1000
1050
1100
1150
1200
1250
1300
1350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.075
.075
.075
Legend
WS 500 Year
WS 100 Year
WS 50 Year
WS 10 Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
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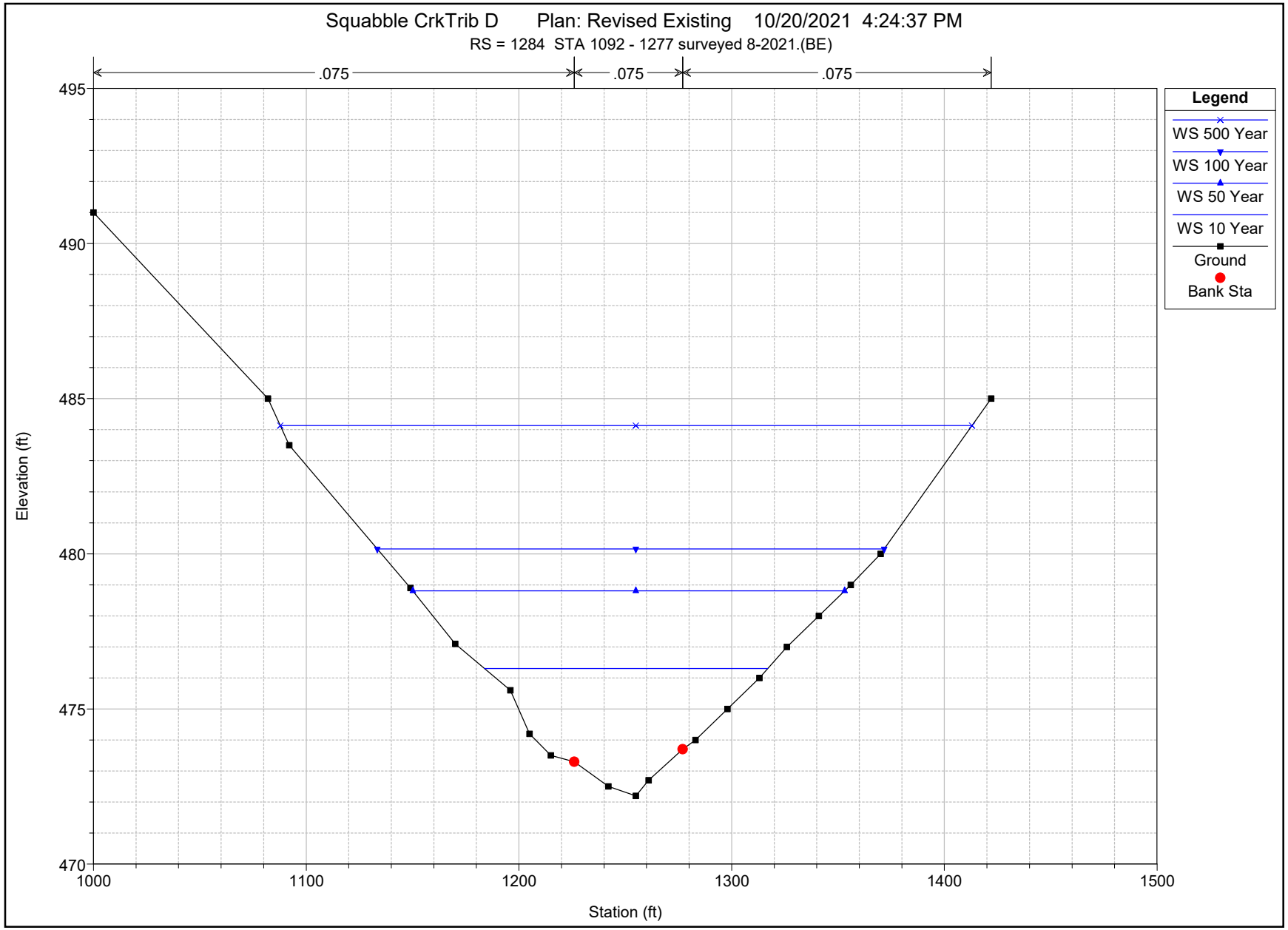
490
485
480
475
470
1000
1050
1100
1150
1200
1250
1300
1350
1400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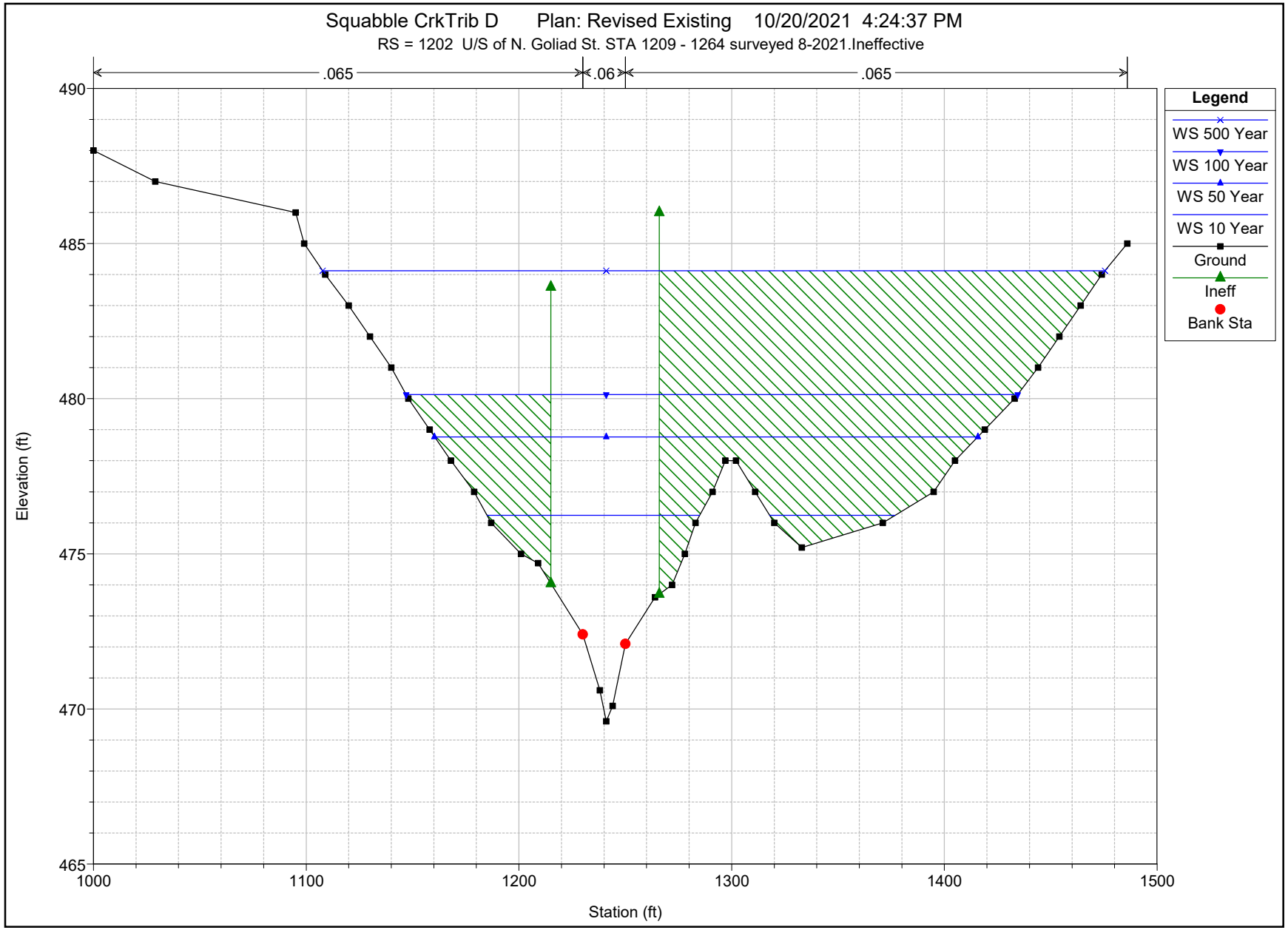
.075
.075
.075
Legend
WS 500 Year
WS 100 Year
WS 50 Year
WS 10 Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
495
490
485
480
475
470
1000
1100
1200
1300
1400
1500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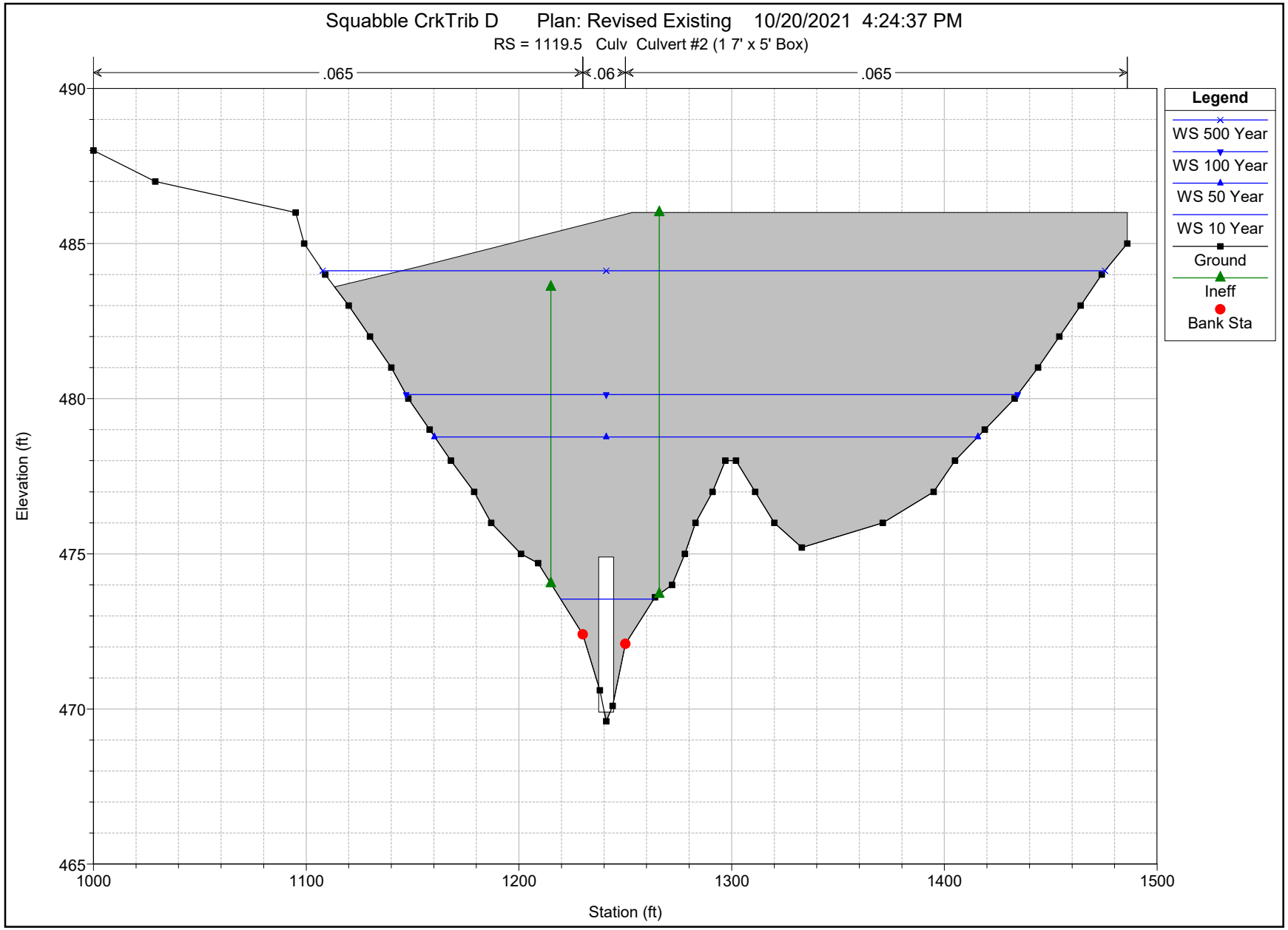
RS = 1202 U/S of N. Goliad St. STA 1209 - 1264 surveyed 8-2021.Ineffective
.065
.06
.065
Legend
WS 500 Year
WS 100 Year
WS 50 Year
WS 10 Year
Ground
Ineff
Bank Sta
Elevation (ft)
490
485
480
475
470
465
1000
1100
1200
1300
1400
1500
Station (ft)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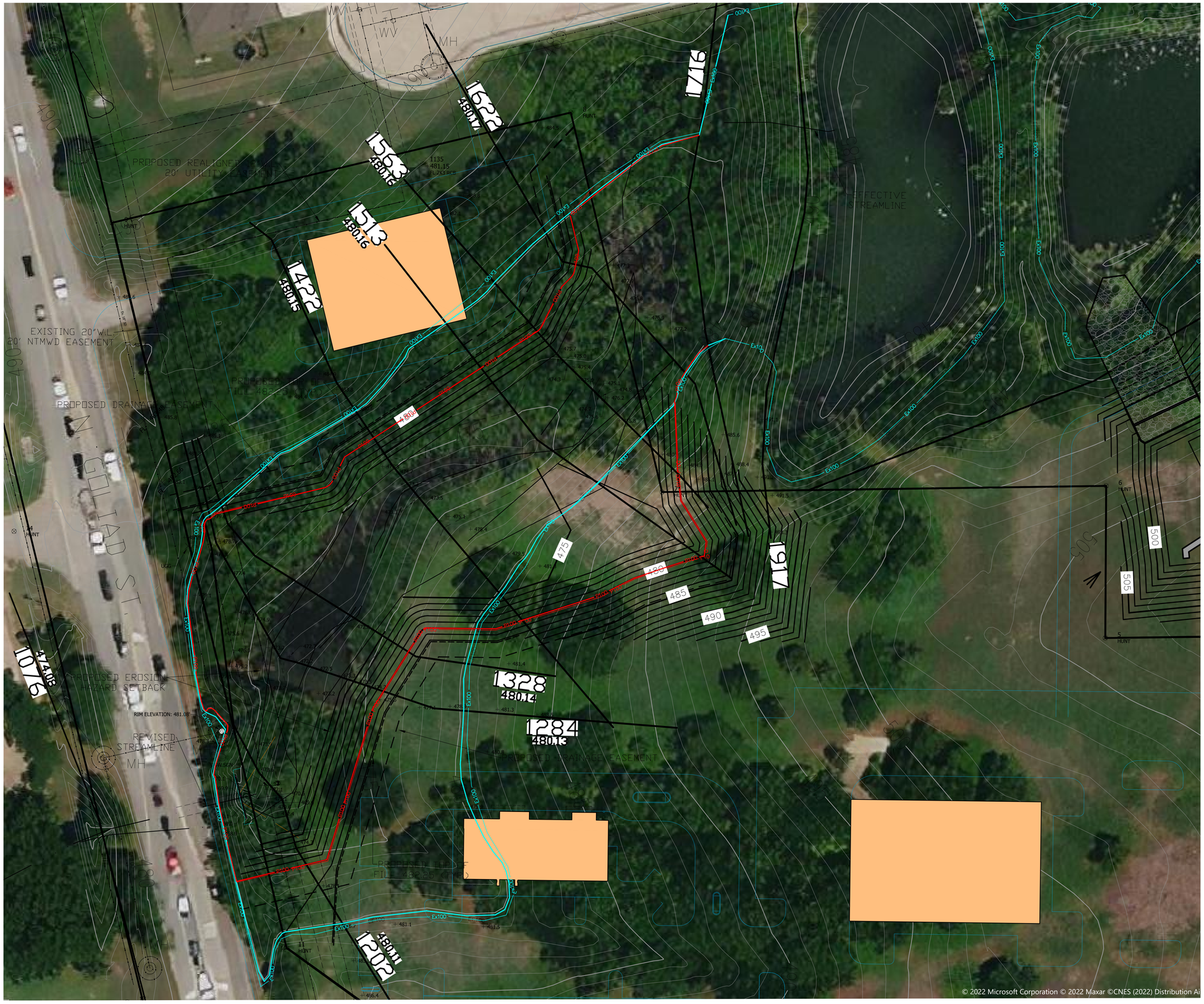
RS = 1119.5 Culv Culvert #2 (1 7' x 5' Box)
.065
.06
.065
490
485
480
475
470
465
Elevation (ft)
1000
1100
1200
1300
1400
1500
Station (ft)
Legend
WS 500 Year
WS 100 Year
WS 50 Year
WS 10 Year
Ground
Ineff
Bank Sta



N

GRAPHIC SCALE

30 0 15 30 60

(IN FEET)
1 inch = 30 ft.

LEGEND

631	EXISTING CONTOUR
	INEFFECTIVE FLOW LIMIT
EF100	EFFECTIVE 100-YEAR FLOODPLAIN
P100	PROPOSED 100-YEAR FLOODPLAIN
P100	PROPOSED ULT 100YR FLOODPLAIN

BENCHMARKS

BM#1:
CITY OF ROCKWALL MONUMENT 14
NAVD88
ELEV.=497.13

BANNISTER ENGINEERING
240 N. Mitchell Road | Mansfield, TX 76063 | 817.842.2094 | 817.842.2095 fax
REGISTRATION # F-10599 (TEXAS)

STONE CREEK RETAIL

ROCKWALL, TEXAS

PROPOSED HYDRAULIC WORK MAP

No.	Date	Revision Description

PROJECT NO.: 262-21-001

STATE OF TEXAS
MICHAEL J. MOORE
128498
LICENSED PROFESSIONAL ENGINEER

3/15/2022

SHEET NUMBER

16

File: B:\Clients\262 (DuWest)\262-21-001 (Stone Creek Retail - Rockwall)\Flood Study\Hydraulic Work Map 262-21-001.dwg || Date Plotted: 3/15/2022 3:26 PM || Plotted By: mmoore

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	4830	10 Year	282.80	519.35	520.87	520.87	521.29	0.025442	5.22	54.13	65.25	1.01
Reach-1	4830	50 Year	380.30	519.35	521.06	521.06	521.56	0.024427	5.65	67.39	72.18	1.02
Reach-1	4830	100 Year	428.80	519.35	521.15	521.15	521.68	0.023297	5.84	73.74	75.26	1.01
Reach-1	4830	500 Year	532.40	519.35	521.32	521.32	521.92	0.021548	6.21	87.15	81.38	0.99
Reach-1	4587	10 Year	282.80	513.00	518.86		518.87	0.000044	0.69	430.47	117.28	0.06
Reach-1	4587	50 Year	380.30	513.00	519.62		519.63	0.000047	0.78	525.32	135.41	0.06
Reach-1	4587	100 Year	428.80	513.00	519.73		519.74	0.000055	0.86	540.77	138.23	0.06
Reach-1	4587	500 Year	532.40	513.00	519.89		519.91	0.000076	1.03	563.88	142.35	0.08
Reach-1	4437	10 Year	221.00	513.00	518.87	513.47	518.87	0.000005	0.24	926.41	201.01	0.02
Reach-1	4437	50 Year	335.20	513.00	519.62	513.61	519.62	0.000008	0.31	1083.55	217.60	0.02
Reach-1	4437	100 Year	390.40	513.00	519.73	513.68	519.73	0.000010	0.35	1108.31	220.27	0.03
Reach-1	4437	500 Year	493.30	513.00	519.90	513.80	519.90	0.000014	0.43	1145.06	224.17	0.03
Reach-1	4338		Culvert									
Reach-1	4291	10 Year	272.80	510.40	512.89	512.89	513.25	0.028885	5.18	66.91	100.17	0.83
Reach-1	4291	50 Year	409.00	510.40	513.15	513.15	513.54	0.028737	5.59	95.01	113.44	0.84
Reach-1	4291	100 Year	479.10	510.40	513.25	513.25	513.66	0.029747	5.86	105.98	116.21	0.87
Reach-1	4291	500 Year	623.10	510.40	513.41	513.41	513.90	0.032533	6.42	124.98	120.85	0.92
Reach-1	4188	10 Year	272.80	508.32	510.93	510.68	511.05	0.017514	3.45	106.19	127.12	0.47
Reach-1	4188	50 Year	409.00	508.32	511.15	510.83	511.31	0.019117	3.91	134.76	130.67	0.50
Reach-1	4188	100 Year	479.10	508.32	511.24	510.92	511.42	0.020174	4.15	146.88	132.32	0.52
Reach-1	4188	500 Year	623.10	508.32	511.41	511.06	511.63	0.021960	4.57	169.63	135.38	0.55
Reach-1	3967	10 Year	272.80	501.10	505.24	505.24	505.74	0.036683	6.03	55.71	58.76	0.68
Reach-1	3967	50 Year	409.00	501.10	505.69	505.59	506.16	0.031380	6.25	85.16	73.06	0.65
Reach-1	3967	100 Year	479.10	501.10	505.89	505.74	506.34	0.028808	6.26	100.58	79.53	0.63
Reach-1	3967	500 Year	623.10	501.10	506.23		506.67	0.025430	6.31	128.62	85.54	0.60
Reach-1	3831	10 Year	272.80	498.10	502.86		503.01	0.011138	3.28	88.38	45.66	0.38
Reach-1	3831	50 Year	409.00	498.10	503.37		503.57	0.012865	3.81	114.80	55.84	0.41
Reach-1	3831	100 Year	479.10	498.10	503.58		503.81	0.013304	4.07	126.49	58.50	0.43
Reach-1	3831	500 Year	623.10	498.10	503.96		504.24	0.013766	4.51	150.16	63.54	0.44
Reach-1	3669	10 Year	272.80	496.18	501.34		501.49	0.009474	3.50	97.14	66.90	0.36

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	3669	50 Year	409.00	496.18	501.93		502.08	0.008351	3.54	138.10	71.48	0.34
Reach-1	3669	100 Year	479.10	496.18	502.19		502.34	0.007954	3.61	156.49	74.02	0.34
Reach-1	3669	500 Year	623.10	496.18	502.64		502.81	0.007470	3.79	191.09	78.93	0.34
Reach-1	3525	10 Year	272.80	495.50	499.43		499.78	0.021679	4.75	58.19	30.05	0.56
Reach-1	3525	50 Year	409.00	495.50	500.17		500.57	0.019240	5.14	84.12	40.85	0.54
Reach-1	3525	100 Year	479.10	495.50	500.48		500.89	0.018499	5.30	97.52	46.09	0.54
Reach-1	3525	500 Year	623.10	495.50	501.03		501.46	0.017060	5.51	125.54	55.36	0.53
Reach-1	3310	10 Year	272.80	492.48	497.61		497.71	0.005232	2.53	107.87	42.71	0.28
Reach-1	3310	50 Year	409.00	492.48	498.32		498.46	0.005731	2.91	140.53	49.72	0.30
Reach-1	3310	100 Year	479.10	492.48	498.62		498.77	0.005955	3.09	155.64	53.10	0.31
Reach-1	3310	500 Year	623.10	492.48	499.13		499.31	0.006414	3.42	184.32	59.50	0.33
Reach-1	3134	10 Year	272.80	491.51	495.61		495.98	0.023895	4.98	58.90	36.49	0.58
Reach-1	3134	50 Year	409.00	491.51	496.17		496.61	0.024250	5.57	81.76	45.51	0.60
Reach-1	3134	100 Year	479.10	491.51	496.42		496.88	0.024163	5.79	93.28	49.58	0.60
Reach-1	3134	500 Year	623.10	491.51	496.87		497.37	0.023271	6.08	117.44	57.20	0.60
Reach-1	2997	10 Year	303.70	491.25	494.56		494.64	0.004711	2.37	138.05	74.88	0.27
Reach-1	2997	50 Year	452.40	491.25	495.04		495.14	0.005251	2.81	174.98	81.53	0.29
Reach-1	2997	100 Year	530.10	491.25	495.24		495.37	0.005483	3.01	192.10	84.62	0.30
Reach-1	2997	500 Year	691.20	491.25	495.56		495.72	0.006290	3.44	220.04	89.43	0.33
Reach-1	2917	10 Year	303.70	491.50	493.20	493.20	493.72	0.062827	6.20	55.28	55.23	0.91
Reach-1	2917	50 Year	452.40	491.50	493.55	493.55	494.16	0.058026	6.86	75.79	63.63	0.90
Reach-1	2917	100 Year	530.10	491.50	493.70	493.70	494.36	0.056110	7.14	86.06	67.44	0.90
Reach-1	2917	500 Year	691.20	491.50	494.20		494.75	0.036216	6.67	122.54	79.52	0.75
Reach-1	2800	10 Year	303.70	490.60	492.98		493.00	0.001201	1.24	250.40	138.69	0.16
Reach-1	2800	50 Year	452.40	490.60	493.42		493.45	0.001325	1.49	312.59	144.40	0.17
Reach-1	2800	100 Year	530.10	490.60	493.65		493.69	0.001313	1.58	347.06	147.47	0.17
Reach-1	2800	500 Year	691.20	490.60	494.14		494.18	0.001236	1.72	419.93	153.76	0.17
Reach-1	2677	10 Year	303.70	490.30	492.21	492.15	492.55	0.032671	5.55	73.29	86.01	0.78
Reach-1	2677	50 Year	452.40	490.30	492.85		493.05	0.013683	4.51	135.96	110.28	0.54
Reach-1	2677	100 Year	530.10	490.30	493.15		493.33	0.009900	4.19	171.01	119.22	0.47
Reach-1	2677	500 Year	691.20	490.30	493.74		493.88	0.005963	3.74	244.98	131.60	0.37

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	2550	10 Year	303.70	489.63	492.32		492.34	0.000270	1.16	303.29	144.05	0.13
Reach-1	2550	50 Year	452.40	489.63	492.86		492.89	0.000305	1.39	384.05	155.11	0.14
Reach-1	2550	100 Year	530.10	489.63	493.14		493.17	0.000306	1.48	429.02	161.23	0.14
Reach-1	2550	500 Year	691.20	489.63	493.72		493.75	0.000297	1.61	525.05	174.12	0.14
Reach-1	2396	10 Year	270.70	489.63	492.28		492.30	0.000248	1.05	270.77	124.71	0.12
Reach-1	2396	50 Year	416.40	489.63	492.81		492.84	0.000306	1.31	339.70	134.32	0.14
Reach-1	2396	100 Year	484.70	489.63	493.10		493.13	0.000303	1.38	382.92	227.01	0.14
Reach-1	2396	500 Year	628.80	489.63	493.68		493.71	0.000268	1.45	517.24	237.64	0.13
Reach-1	2200	10 Year	270.70	489.63	492.19		492.23	0.000539	1.49	183.10	82.84	0.17
Reach-1	2200	50 Year	416.40	489.63	492.70		492.75	0.000670	1.87	225.78	86.47	0.20
Reach-1	2200	100 Year	484.70	489.63	492.98		493.04	0.000663	1.97	250.48	88.51	0.20
Reach-1	2200	500 Year	628.80	489.63	493.56		493.63	0.000616	2.11	326.36	240.58	0.20
Reach-1	2028	10 Year	270.70	487.50	491.66		491.96	0.013208	4.35	62.34	28.40	0.52
Reach-1	2028	50 Year	416.40	487.50	491.65		492.35	0.031961	6.74	61.86	28.33	0.80
Reach-1	2028	100 Year	484.70	487.50	491.58	491.54	492.60	0.047555	8.09	59.92	28.06	0.98
Reach-1	2028	500 Year	628.80	487.50	491.96	491.96	493.18	0.049168	8.89	70.78	29.53	1.01
Reach-1	1973	10 Year	270.70	488.58	491.81		491.81	0.000014	0.30	908.58	290.49	0.03
Reach-1	1973	50 Year	416.40	488.58	491.99		491.99	0.000028	0.44	961.51	291.76	0.04
Reach-1	1973	100 Year	484.70	488.58	492.07		492.08	0.000034	0.50	986.86	292.53	0.05
Reach-1	1973	500 Year	628.80	488.58	492.21		492.22	0.000051	0.62	1027.78	293.77	0.06
Reach-1	1917	10 Year	270.70	489.00	491.58	491.58	491.78	0.026535	5.28	98.52	218.46	0.74
Reach-1	1917	50 Year	416.40	489.00	491.72	491.72	491.96	0.029801	5.93	131.47	239.74	0.80
Reach-1	1917	100 Year	484.70	489.00	491.74	491.74	492.04	0.037775	6.71	134.85	241.82	0.90
Reach-1	1917	500 Year	628.80	489.00	491.90	491.90	492.18	0.033371	6.69	177.20	287.74	0.86
Reach-1	1716	10 Year	270.70	478.80	480.16		480.22	0.008591	2.05	132.33	128.70	0.35
Reach-1	1716	50 Year	416.40	478.80	480.13		480.29	0.022367	3.25	128.49	127.81	0.56
Reach-1	1716	100 Year	484.70	478.80	480.60		480.70	0.008562	2.57	191.46	141.73	0.37
Reach-1	1716	500 Year	628.80	478.80	481.82		481.86	0.001727	1.72	385.73	173.75	0.18
Reach-1	1622	10 Year	279.70	476.80	478.01	478.01	478.37	0.069060	5.10	60.97	82.65	0.91
Reach-1	1622	50 Year	391.30	476.80	479.19		479.28	0.006118	2.58	165.95	94.63	0.31

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1622	100 Year	435.70	476.80	480.35		480.39	0.001467	1.68	281.25	104.78	0.16
Reach-1	1622	500 Year	551.50	476.80	481.74		481.77	0.000617	1.38	435.93	117.93	0.11
Reach-1	1563	10 Year	279.70	474.30	476.96		477.08	0.010076	2.93	113.27	99.90	0.38
Reach-1	1563	50 Year	391.30	474.30	479.16		479.18	0.000602	1.22	359.69	122.77	0.11
Reach-1	1563	100 Year	435.70	474.30	480.34		480.35	0.000251	0.93	511.17	134.75	0.07
Reach-1	1563	500 Year	551.50	474.30	481.74		481.75	0.000147	0.84	709.86	150.11	0.06
Reach-1	1513	10 Year	279.70	474.00	476.77		476.81	0.003089	1.90	199.53	162.82	0.22
Reach-1	1513	50 Year	391.30	474.00	479.16		479.17	0.000181	0.74	614.52	184.38	0.06
Reach-1	1513	100 Year	435.70	474.00	480.34		480.35	0.000084	0.59	838.79	195.38	0.04
Reach-1	1513	500 Year	551.50	474.00	481.74		481.74	0.000054	0.54	1121.03	208.44	0.04
Reach-1	1422	10 Year	279.70	471.64	476.69		476.70	0.000494	1.16	322.17	127.06	0.10
Reach-1	1422	50 Year	391.30	471.64	479.15		479.15	0.000102	0.71	659.36	147.47	0.05
Reach-1	1422	100 Year	435.70	471.64	480.33		480.34	0.000060	0.60	840.32	157.33	0.04
Reach-1	1422	500 Year	551.50	471.64	481.73		481.74	0.000045	0.58	1068.36	168.95	0.03
Reach-1	1328	10 Year	279.70	471.90	476.61		476.64	0.000994	1.64	232.05	99.56	0.14
Reach-1	1328	50 Year	391.30	471.90	479.13		479.14	0.000193	0.98	539.53	144.59	0.07
Reach-1	1328	100 Year	435.70	471.90	480.33		480.33	0.000101	0.79	720.97	157.10	0.05
Reach-1	1328	500 Year	551.50	471.90	481.73		481.73	0.000070	0.73	948.81	168.30	0.04
Reach-1	1284	10 Year	279.70	472.20	476.59		476.61	0.000483	1.06	292.84	111.49	0.10
Reach-1	1284	50 Year	391.30	472.20	479.13		479.13	0.000113	0.72	634.58	158.94	0.05
Reach-1	1284	100 Year	435.70	472.20	480.32		480.33	0.000065	0.61	837.53	178.88	0.04
Reach-1	1284	500 Year	551.50	472.20	481.72		481.73	0.000047	0.58	1096.14	190.24	0.03
Reach-1	1202	10 Year	279.70	469.60	476.54	472.82	476.57	0.000392	1.51	219.14	149.81	0.11
Reach-1	1202	50 Year	391.30	469.60	479.10	473.32	479.12	0.000170	1.28	349.48	224.45	0.08
Reach-1	1202	100 Year	435.70	469.60	480.30	473.47	480.32	0.000124	1.20	410.75	245.08	0.07
Reach-1	1202	500 Year	551.50	469.60	481.70	473.88	481.72	0.000118	1.28	482.06	256.49	0.07
Reach-1	1119.5		Culvert									
Reach-1	1076	10 Year	282.00	469.20	472.93	472.93	474.78	0.023479	10.91	25.85	87.56	1.00
Reach-1	1076	50 Year	395.80	469.20	473.87	473.87	476.19	0.021797	12.22	32.39	128.13	1.00
Reach-1	1076	100 Year	440.80	469.20	474.20	474.20	476.71	0.021461	12.70	34.72	140.97	1.00

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1076	500 Year	555.70	469.20	474.90	474.90	475.09	0.002633	4.85	190.24	165.71	0.36
Reach-1	1026	10 Year	282.00	465.90	471.01		471.06	0.000698	1.99	181.74	85.91	0.17
Reach-1	1026	50 Year	395.80	465.90	471.24		471.32	0.001080	2.56	202.38	93.46	0.22
Reach-1	1026	100 Year	440.80	465.90	471.40		471.49	0.001136	2.69	217.83	98.73	0.22
Reach-1	1026	500 Year	555.70	465.90	471.51		471.65	0.001612	3.26	229.14	102.43	0.27
Reach-1	981	10 Year	282.00	465.70	470.99		471.03	0.000553	1.85	200.66	97.08	0.16
Reach-1	981	50 Year	395.80	465.70	471.20		471.28	0.000872	2.40	222.73	105.91	0.20
Reach-1	981	100 Year	440.80	465.70	471.36		471.44	0.000921	2.52	240.09	112.38	0.20
Reach-1	981	500 Year	555.70	465.70	471.46		471.58	0.001331	3.07	251.04	116.27	0.25
Reach-1	918	10 Year	282.00	465.30	470.98		471.00	0.000248	1.24	310.87	138.11	0.10
Reach-1	918	50 Year	395.80	465.30	471.20		471.23	0.000390	1.61	341.55	145.46	0.13
Reach-1	918	100 Year	440.80	465.30	471.36		471.39	0.000411	1.69	365.21	150.88	0.14
Reach-1	918	500 Year	555.70	465.30	471.45		471.50	0.000595	2.06	379.59	154.08	0.17
Reach-1	833	10 Year	282.00	464.10	470.97	468.82	470.98	0.000154	1.01	445.86	201.91	0.07
Reach-1	833	50 Year	395.80	464.10	471.18	469.99	471.19	0.000276	1.38	489.21	211.73	0.09
Reach-1	833	100 Year	440.80	464.10	471.34	470.27	471.35	0.000286	1.43	523.46	217.95	0.09
Reach-1	833	500 Year	555.70	464.10	471.43	470.27	471.45	0.000414	1.73	542.53	221.34	0.11
Reach-1	817.5		Culvert									
Reach-1	802	10 Year	282.00	463.92	467.34	466.81	467.44	0.005690	3.52	134.62	107.33	0.34
Reach-1	802	50 Year	395.80	463.92	467.74	466.81	467.85	0.005549	3.76	182.16	128.59	0.34
Reach-1	802	100 Year	440.80	463.92	467.88	466.82	467.99	0.005497	3.83	200.36	135.85	0.35
Reach-1	802	500 Year	555.70	463.92	468.18	467.06	468.29	0.005376	3.99	243.25	146.09	0.35
Reach-1	726	10 Year	282.00	463.60	466.81		466.93	0.008483	2.84	107.79	76.39	0.34
Reach-1	726	50 Year	395.80	463.60	467.17		467.32	0.008976	3.24	138.43	91.08	0.36
Reach-1	726	100 Year	440.80	463.60	467.30		467.46	0.009085	3.37	150.37	96.20	0.37
Reach-1	726	500 Year	555.70	463.60	467.56		467.75	0.009732	3.71	176.62	106.60	0.38
Reach-1	635	10 Year	282.00	462.00	464.69	464.69	465.28	0.055775	6.34	49.72	48.27	0.84
Reach-1	635	50 Year	395.80	462.00	465.06	465.06	465.67	0.048502	6.71	69.95	61.60	0.81
Reach-1	635	100 Year	440.80	462.00	465.18	465.18	465.81	0.047404	6.87	77.23	65.74	0.81
Reach-1	635	500 Year	555.70	462.00	465.48	465.45	466.10	0.041128	6.97	99.15	76.87	0.77

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	619	10 Year	282.00	460.00	464.25		464.55	0.018752	4.45	64.29	35.08	0.50
Reach-1	619	50 Year	395.80	460.00	464.66		465.07	0.020718	5.19	82.06	50.78	0.54
Reach-1	619	100 Year	440.80	460.00	464.80		465.24	0.021169	5.42	89.57	56.11	0.55
Reach-1	619	500 Year	555.70	460.00	465.11		465.61	0.022059	5.90	108.69	67.81	0.57
Reach-1	495	10 Year	282.00	458.30	462.20		462.37	0.016112	3.28	86.59	60.43	0.45
Reach-1	495	50 Year	395.80	458.30	462.56		462.77	0.015970	3.72	111.07	76.60	0.46
Reach-1	495	100 Year	440.80	458.30	462.67		462.90	0.016008	3.87	120.53	82.00	0.47
Reach-1	495	500 Year	555.70	458.30	462.94		463.20	0.016084	4.20	144.27	94.20	0.48
Reach-1	393	10 Year	282.00	456.95	460.91	459.87	461.07	0.010542	3.50	103.01	95.31	0.39
Reach-1	393	50 Year	395.80	456.95	461.17	460.61	461.37	0.012367	4.04	129.30	106.93	0.42
Reach-1	393	100 Year	440.80	456.95	461.26	460.74	461.48	0.012933	4.22	139.10	110.95	0.44
Reach-1	393	500 Year	555.70	456.95	461.45	460.94	461.71	0.014548	4.67	160.99	119.45	0.47

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	4830	10yr	294.00	519.35	520.89	520.89	521.32	0.025262	5.26	55.84	66.19	1.01
Reach-1	4830	50yr	392.00	519.35	521.08	521.08	521.59	0.024217	5.70	68.85	72.90	1.01
Reach-1	4830	100yr	441.00	519.35	521.17	521.17	521.71	0.022900	5.88	75.49	76.09	1.00
Reach-1	4830	500yr	544.00	519.35	521.34	521.34	521.94	0.021345	6.25	88.70	82.06	0.99
Reach-1	4587	10yr	294.00	513.00	518.52		518.53	0.000062	0.78	391.12	110.37	0.06
Reach-1	4587	50yr	392.00	513.00	519.59		519.60	0.000050	0.81	521.85	134.77	0.06
Reach-1	4587	100yr	441.00	513.00	519.73		519.74	0.000058	0.89	540.59	138.20	0.07
Reach-1	4587	500yr	544.00	513.00	519.89		519.90	0.000080	1.06	563.04	142.20	0.08
Reach-1	4437	10yr	204.00	513.00	518.52	513.44	518.52	0.000006	0.24	857.91	195.92	0.02
Reach-1	4437	50yr	324.00	513.00	519.59	513.60	519.59	0.000007	0.30	1078.05	217.00	0.02
Reach-1	4437	100yr	378.00	513.00	519.73	513.67	519.73	0.000009	0.34	1108.10	220.24	0.03
Reach-1	4437	500yr	481.00	513.00	519.89	513.78	519.89	0.000013	0.42	1143.84	224.05	0.03
Reach-1	4338		Culvert									
Reach-1	4291	10yr	204.00	510.40	512.70	512.70	513.05	0.029995	5.00	48.89	80.77	0.83
Reach-1	4291	50yr	324.00	510.40	513.01	513.01	513.37	0.028699	5.32	78.82	109.22	0.83
Reach-1	4291	100yr	378.00	510.40	513.11	513.11	513.48	0.028395	5.47	89.70	112.07	0.84
Reach-1	4291	500yr	481.00	510.40	513.25	513.25	513.67	0.029759	5.87	106.28	116.28	0.87
Reach-1	4188	10yr	204.00	508.32	510.82	510.58	510.91	0.014858	3.04	92.35	125.82	0.43
Reach-1	4188	50yr	324.00	508.32	511.02	510.75	511.15	0.017870	3.61	118.18	128.36	0.48
Reach-1	4188	100yr	378.00	508.32	511.11	510.81	511.25	0.018552	3.80	129.23	129.90	0.49
Reach-1	4188	500yr	481.00	508.32	511.25	510.92	511.43	0.019607	4.11	148.64	132.56	0.51
Reach-1	3967	10yr	204.00	501.10	504.78	504.65	505.36	0.052446	6.25	34.82	27.40	0.79
Reach-1	3967	50yr	324.00	501.10	505.42	505.39	505.91	0.035153	6.18	66.38	64.31	0.68
Reach-1	3967	100yr	378.00	501.10	505.59	505.53	506.07	0.032930	6.25	78.06	69.88	0.66
Reach-1	3967	500yr	481.00	501.10	505.88	505.74	506.35	0.029893	6.36	99.39	79.05	0.64
Reach-1	3831	10yr	204.00	498.10	502.49		502.61	0.010147	2.94	72.67	39.61	0.35
Reach-1	3831	50yr	324.00	498.10	503.09		503.26	0.012213	3.45	99.70	52.00	0.40
Reach-1	3831	100yr	378.00	498.10	503.29		503.47	0.012461	3.66	110.00	54.71	0.41
Reach-1	3831	500yr	481.00	498.10	503.62		503.84	0.012686	4.01	128.94	59.04	0.42
Reach-1	3669	10yr	216.00	496.18	500.99		501.14	0.009548	3.34	74.48	44.15	0.36

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	3669	50yr	326.00	496.18	501.59		501.74	0.008938	3.51	114.00	68.82	0.35
Reach-1	3669	100yr	386.00	496.18	501.84		501.99	0.008505	3.53	131.56	70.77	0.35
Reach-1	3669	500yr	505.00	496.18	502.27		502.43	0.007839	3.64	162.96	74.97	0.34
Reach-1	3525	10yr	216.00	495.50	499.07		499.38	0.022868	4.49	48.18	24.96	0.56
Reach-1	3525	50yr	326.00	495.50	499.77		500.13	0.019984	4.88	68.98	34.72	0.54
Reach-1	3525	100yr	386.00	495.50	500.08		500.46	0.019059	5.04	80.53	39.33	0.54
Reach-1	3525	500yr	505.00	495.50	500.60		501.01	0.017939	5.31	103.23	48.15	0.53
Reach-1	3310	10yr	216.00	492.48	497.18		497.27	0.005301	2.40	90.07	39.01	0.28
Reach-1	3310	50yr	326.00	492.48	497.85		497.97	0.005863	2.76	118.16	44.71	0.30
Reach-1	3310	100yr	386.00	492.48	498.15		498.28	0.006083	2.93	131.91	47.69	0.31
Reach-1	3310	500yr	505.00	492.48	498.64		498.80	0.006497	3.24	156.69	53.33	0.32
Reach-1	3134	10yr	216.00	491.51	495.66	494.61	495.89	0.012615	3.91	60.75	37.29	0.43
Reach-1	3134	50yr	326.00	491.51	496.26	495.20	496.53	0.012128	4.41	85.94	47.03	0.44
Reach-1	3134	100yr	386.00	491.51	496.48	495.47	496.78	0.012739	4.72	96.61	50.70	0.45
Reach-1	3134	500yr	505.00	491.51	496.89	495.92	497.24	0.013071	5.16	118.84	57.61	0.47
Reach-1	2997	10yr	253.00	492.00	493.78	493.08	493.96	0.015133	3.44	73.44	71.25	0.46
Reach-1	2997	50yr	378.00	492.00	494.08	493.39	494.38	0.019804	4.38	86.20	75.75	0.54
Reach-1	2997	100yr	448.00	492.00	494.40	493.56	494.71	0.017301	4.51	99.41	78.58	0.52
Reach-1	2997	500yr	589.00	492.00	494.99	493.86	495.34	0.014274	4.75	124.10	83.87	0.49
Reach-1	2957		Culvert									
Reach-1	2917	10yr	253.00	491.30	492.87	492.87	493.55	0.081943	6.60	38.35	28.83	1.01
Reach-1	2917	50yr	378.00	491.30	493.40	493.40	494.01	0.050474	6.46	63.58	69.46	0.84
Reach-1	2917	100yr	448.00	491.30	493.56	493.56	494.23	0.050717	6.84	71.38	72.73	0.85
Reach-1	2917	500yr	589.00	491.30	494.17		494.71	0.029486	6.21	101.73	88.29	0.68
Reach-1	2800	10yr	253.00	490.60	492.81		492.83	0.001120	1.13	228.17	136.59	0.15
Reach-1	2800	50yr	378.00	490.60	493.23		493.26	0.001226	1.36	285.82	141.97	0.16
Reach-1	2800	100yr	448.00	490.60	493.51		493.54	0.001131	1.41	326.83	145.68	0.16
Reach-1	2800	500yr	589.00	490.60	494.17		494.20	0.000861	1.44	425.57	154.23	0.14
Reach-1	2677	10yr	253.00	490.30	492.19		492.44	0.024087	4.73	71.65	85.29	0.67
Reach-1	2677	50yr	378.00	490.30	492.70		492.89	0.013342	4.26	120.18	104.70	0.52

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	2677	100yr	448.00	490.30	493.11		493.24	0.007751	3.66	165.65	118.27	0.41
Reach-1	2677	500yr	589.00	490.30	493.93		494.01	0.003276	2.88	269.90	135.52	0.28
Reach-1	2550	10yr	253.00	489.63	492.27		492.28	0.000202	0.98	295.66	142.95	0.11
Reach-1	2550	50yr	378.00	489.63	492.72		492.74	0.000250	1.22	362.82	152.28	0.12
Reach-1	2550	100yr	448.00	489.63	493.10		493.12	0.000228	1.27	422.47	160.31	0.12
Reach-1	2550	500yr	589.00	489.63	493.91		493.94	0.000181	1.30	559.62	178.53	0.11
Reach-1	2396	10yr	256.00	489.63	492.23		492.25	0.000237	1.02	264.49	123.79	0.12
Reach-1	2396	50yr	379.00	489.63	492.68		492.70	0.000296	1.26	321.47	131.85	0.13
Reach-1	2396	100yr	475.00	489.63	493.06		493.08	0.000305	1.37	373.35	226.23	0.14
Reach-1	2396	500yr	684.00	489.63	493.87		493.90	0.000260	1.48	563.53	241.20	0.13
Reach-1	2200	10yr	256.00	489.63	492.15		492.18	0.000514	1.44	179.28	82.50	0.17
Reach-1	2200	50yr	379.00	489.63	492.57		492.61	0.000650	1.79	214.46	85.52	0.20
Reach-1	2200	100yr	475.00	489.63	492.94		493.00	0.000666	1.96	246.73	88.20	0.20
Reach-1	2200	500yr	684.00	489.63	493.76		493.82	0.000586	2.13	373.97	243.86	0.20
Reach-1	2028	10yr	256.00	487.50	491.66		491.92	0.011841	4.11	62.29	28.39	0.49
Reach-1	2028	50yr	379.00	487.50	491.68		492.25	0.025210	6.03	62.91	28.47	0.71
Reach-1	2028	100yr	475.00	487.50	491.57	491.51	492.56	0.046045	7.95	59.75	28.04	0.96
Reach-1	2028	500yr	684.00	487.50	492.12	492.12	493.39	0.047695	9.03	75.79	30.18	1.00
Reach-1	1973	10yr	256.00	488.58	491.79		491.79	0.000013	0.29	903.79	290.40	0.03
Reach-1	1973	50yr	379.00	488.58	491.96		491.96	0.000024	0.40	952.73	291.49	0.04
Reach-1	1973	100yr	475.00	488.58	492.05		492.06	0.000034	0.49	980.26	292.33	0.05
Reach-1	1973	500yr	684.00	488.58	492.27		492.27	0.000057	0.66	1043.77	294.25	0.06
Reach-1	1917	10yr	259.00	489.00	491.56	491.56	491.77	0.026108	5.21	95.74	216.57	0.73
Reach-1	1917	50yr	391.00	489.00	491.71	491.71	491.93	0.028178	5.73	128.01	237.59	0.77
Reach-1	1917	100yr	469.00	489.00	491.74	491.74	492.02	0.034738	6.44	135.78	242.38	0.86
Reach-1	1917	500yr	692.00	489.00	491.95	491.95	492.23	0.032279	6.72	194.34	303.52	0.85
Reach-1	1716	10yr	259.00	478.80	480.11		480.18	0.009107	2.05	126.49	127.34	0.36
Reach-1	1716	50yr	391.00	478.80	480.27		480.38	0.012779	2.67	147.02	132.06	0.43
Reach-1	1716	100yr	469.00	478.80	480.42		480.54	0.012287	2.84	166.97	136.49	0.43
Reach-1	1716	500yr	692.00	478.80	481.82		481.88	0.002083	1.89	386.25	173.82	0.20

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1622	10yr	270.00	476.80	478.03	477.99	478.35	0.058724	4.77	62.85	82.89	0.84
Reach-1	1622	50yr	413.00	476.80	478.62		478.84	0.022307	4.01	113.43	89.04	0.56
Reach-1	1622	100yr	474.00	476.80	480.01		480.07	0.002617	2.09	246.25	101.57	0.21
Reach-1	1622	500yr	653.00	476.80	481.72		481.75	0.000883	1.64	432.91	117.69	0.13
Reach-1	1563	10yr	270.00	474.30	476.87		476.99	0.011827	3.06	103.83	95.84	0.41
Reach-1	1563	50yr	413.00	474.30	478.55		478.59	0.001362	1.64	286.37	116.74	0.16
Reach-1	1563	100yr	474.00	474.30	480.00		480.01	0.000398	1.12	465.17	130.95	0.09
Reach-1	1563	500yr	653.00	474.30	481.71		481.72	0.000210	1.00	705.79	149.81	0.07
Reach-1	1513	10yr	270.00	474.00	476.57		476.62	0.004779	2.22	167.62	161.05	0.27
Reach-1	1513	50yr	413.00	474.00	478.54		478.55	0.000385	0.98	501.65	178.77	0.09
Reach-1	1513	100yr	474.00	474.00	479.99		480.00	0.000129	0.70	771.51	191.90	0.05
Reach-1	1513	500yr	653.00	474.00	481.71		481.72	0.000077	0.65	1115.38	208.20	0.04
Reach-1	1422	10yr	270.00	471.64	476.47		476.49	0.000608	1.24	294.81	125.26	0.11
Reach-1	1422	50yr	413.00	471.64	478.51		478.52	0.000182	0.88	567.80	142.22	0.06
Reach-1	1422	100yr	474.00	471.64	479.98		479.99	0.000087	0.70	785.65	154.42	0.04
Reach-1	1422	500yr	653.00	471.64	481.70		481.71	0.000065	0.69	1063.42	168.70	0.04
Reach-1	1328	10yr	270.00	471.90	476.38		476.41	0.001228	1.75	209.26	95.35	0.15
Reach-1	1328	50yr	413.00	471.90	478.49		478.50	0.000354	1.24	449.86	133.24	0.09
Reach-1	1328	100yr	474.00	471.90	479.97		479.98	0.000153	0.94	665.69	154.26	0.06
Reach-1	1328	500yr	653.00	471.90	481.69		481.70	0.000099	0.87	943.42	168.05	0.05
Reach-1	1284	10yr	270.00	472.20	476.35		476.37	0.000585	1.12	266.72	107.41	0.10
Reach-1	1284	50yr	413.00	472.20	478.48		478.49	0.000199	0.89	535.45	146.67	0.07
Reach-1	1284	100yr	474.00	472.20	479.97		479.97	0.000096	0.72	774.55	174.15	0.05
Reach-1	1284	500yr	653.00	472.20	481.69		481.70	0.000067	0.69	1089.91	189.97	0.04
Reach-1	1202	10yr	264.00	469.60	476.30	472.74	476.33	0.000419	1.52	206.82	138.92	0.12
Reach-1	1202	50yr	365.00	469.60	478.45	473.21	478.47	0.000205	1.33	316.28	212.67	0.09
Reach-1	1202	100yr	423.00	469.60	479.94	473.43	479.96	0.000136	1.22	392.55	239.73	0.07
Reach-1	1202	500yr	550.00	469.60	481.66	473.89	481.69	0.000118	1.28	480.45	256.23	0.07
Reach-1	1119.5		Culvert									
Reach-1	1076	10yr	264.00	469.20	472.77	472.77	474.54	0.023811	10.67	24.74	80.69	1.00

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

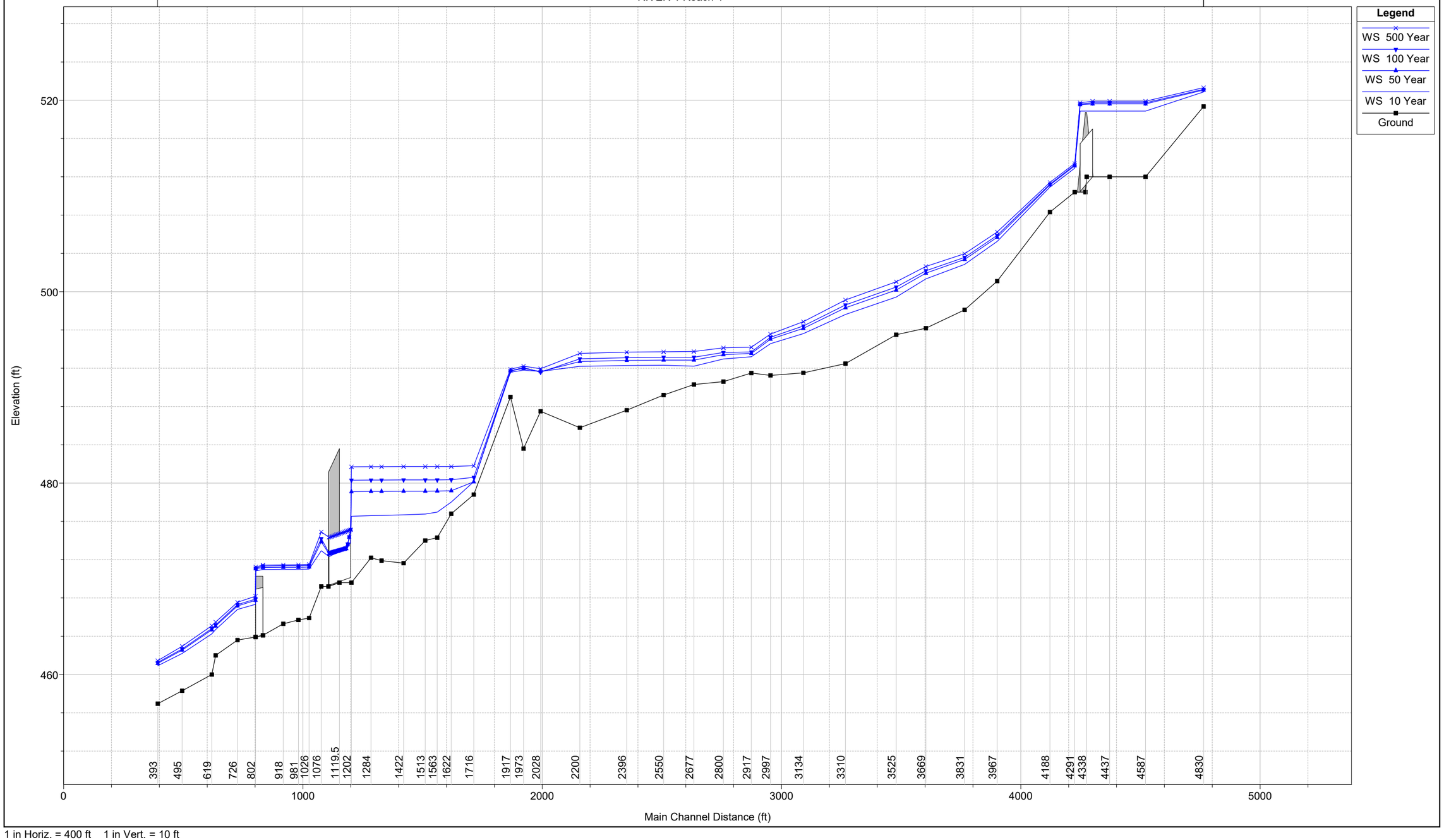
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1076	50yr	365.00	469.20	473.62	473.62	475.82	0.022250	11.90	30.67	117.43	1.00
Reach-1	1076	100yr	423.00	469.20	474.08	474.08	476.51	0.021509	12.50	33.85	136.53	1.00
Reach-1	1076	500yr	550.00	469.20	474.90	474.90	475.08	0.002579	4.80	190.24	165.71	0.36
Reach-1	1026	10yr	264.00	468.01	470.52		470.81	0.008207	4.59	65.98	40.50	0.54
Reach-1	1026	50yr	365.00	468.01	471.02		471.35	0.007404	4.98	87.77	48.57	0.53
Reach-1	1026	100yr	423.00	468.01	471.25		471.62	0.007446	5.27	100.36	59.76	0.54
Reach-1	1026	500yr	550.00	468.01	471.77		472.14	0.006284	5.40	135.65	74.94	0.51
Reach-1	981	10yr	264.00	466.62	470.18		470.50	0.006341	5.06	68.87	39.73	0.50
Reach-1	981	50yr	365.00	466.62	470.67		471.04	0.006537	5.65	90.57	50.47	0.52
Reach-1	981	100yr	423.00	466.62	470.93		471.31	0.006410	5.85	104.21	56.02	0.52
Reach-1	981	500yr	550.00	466.62	471.45		471.86	0.006106	6.21	137.83	73.26	0.52
Reach-1	918	10yr	264.00	466.33	468.90	468.90	469.71	0.028282	7.30	37.73	25.74	0.96
Reach-1	918	50yr	365.00	466.33	469.33	469.33	470.27	0.024790	7.90	49.92	30.09	0.93
Reach-1	918	100yr	423.00	466.33	469.55	469.55	470.55	0.023887	8.24	56.60	32.96	0.93
Reach-1	918	500yr	550.00	466.33	469.89	469.89	471.09	0.024578	9.13	69.16	39.45	0.96
Reach-1	833	10yr	267.00	464.91	466.86	466.63	467.28	0.027861	5.37	52.24	38.34	0.73
Reach-1	833	50yr	370.00	464.91	467.42	466.95	467.82	0.018179	5.25	74.86	41.75	0.62
Reach-1	833	100yr	428.00	464.91	467.68	467.11	468.08	0.015950	5.29	85.86	42.70	0.59
Reach-1	833	500yr	553.00	464.91	468.14	467.42	468.58	0.013950	5.54	105.54	44.52	0.57
Reach-1	817.5		Culvert									
Reach-1	802	10yr	267.00	464.24	467.02	465.66	467.11	0.004174	2.45	109.20	61.06	0.28
Reach-1	802	50yr	370.00	464.24	467.44	465.90	467.57	0.004652	2.88	128.58	63.56	0.30
Reach-1	802	100yr	428.00	464.24	467.64	466.03	467.79	0.004948	3.11	137.74	64.77	0.32
Reach-1	802	500yr	553.00	464.24	467.98	466.30	468.18	0.005787	3.61	153.26	66.89	0.35
Reach-1	726	10yr	267.00	462.44	466.51		466.74	0.013289	4.37	77.01	53.97	0.44
Reach-1	726	50yr	370.00	462.44	466.89		467.17	0.014031	4.85	99.39	67.75	0.46
Reach-1	726	100yr	428.00	462.44	467.07		467.37	0.014452	5.10	113.01	80.24	0.47
Reach-1	726	500yr	553.00	462.44	467.41		467.73	0.014520	5.42	141.61	88.51	0.48
Reach-1	635	10yr	267.00	462.11	465.28		465.49	0.014401	4.08	81.42	61.30	0.45
Reach-1	635	50yr	370.00	462.11	465.74		465.95	0.012418	4.24	112.16	73.28	0.43

HEC-RAS Plan: Post-Proj River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	635	100yr	428.00	462.11	465.94		466.16	0.012044	4.36	127.26	78.02	0.43
Reach-1	635	500yr	553.00	462.11	466.31		466.55	0.011435	4.58	157.92	85.70	0.43
Reach-1	619	10yr	267.00	461.54	464.88	464.05	465.23	0.018646	4.96	62.47	41.33	0.52
Reach-1	619	50yr	370.00	461.54	465.29	464.67	465.70	0.019672	5.57	82.37	55.98	0.55
Reach-1	619	100yr	428.00	461.54	465.45	464.84	465.90	0.020720	5.91	91.89	61.47	0.57
Reach-1	619	500yr	553.00	461.54	465.40	465.40	466.20	0.037335	7.85	88.77	59.84	0.76
Reach-1	495	10yr	366.00	459.66	461.51	461.51	462.16	0.085840	6.44	56.90	51.69	1.00
Reach-1	495	50yr	513.00	459.66	461.85	461.85	462.64	0.077440	7.14	72.72	55.55	0.98
Reach-1	495	100yr	587.00	459.66	462.02	462.02	462.86	0.071582	7.35	81.47	58.95	0.96
Reach-1	495	500yr	750.00	459.66	462.90	462.34	463.47	0.029348	6.12	126.64	69.84	0.66
Reach-1	400		Culvert									
Reach-1	393	10yr	366.00	458.16	460.95	460.95	461.65	0.055111	7.32	58.30	41.20	0.87
Reach-1	393	50yr	513.00	458.16	461.32	461.32	462.17	0.054833	8.10	74.00	43.62	0.89
Reach-1	393	100yr	587.00	458.16	461.50	461.50	462.40	0.053378	8.36	82.06	44.82	0.89
Reach-1	393	500yr	750.00	458.16	461.85	461.85	462.88	0.052830	8.99	97.82	47.22	0.90

SquabbleTribD Plan: Post-Project 3/3/2022 3:39:07 PM

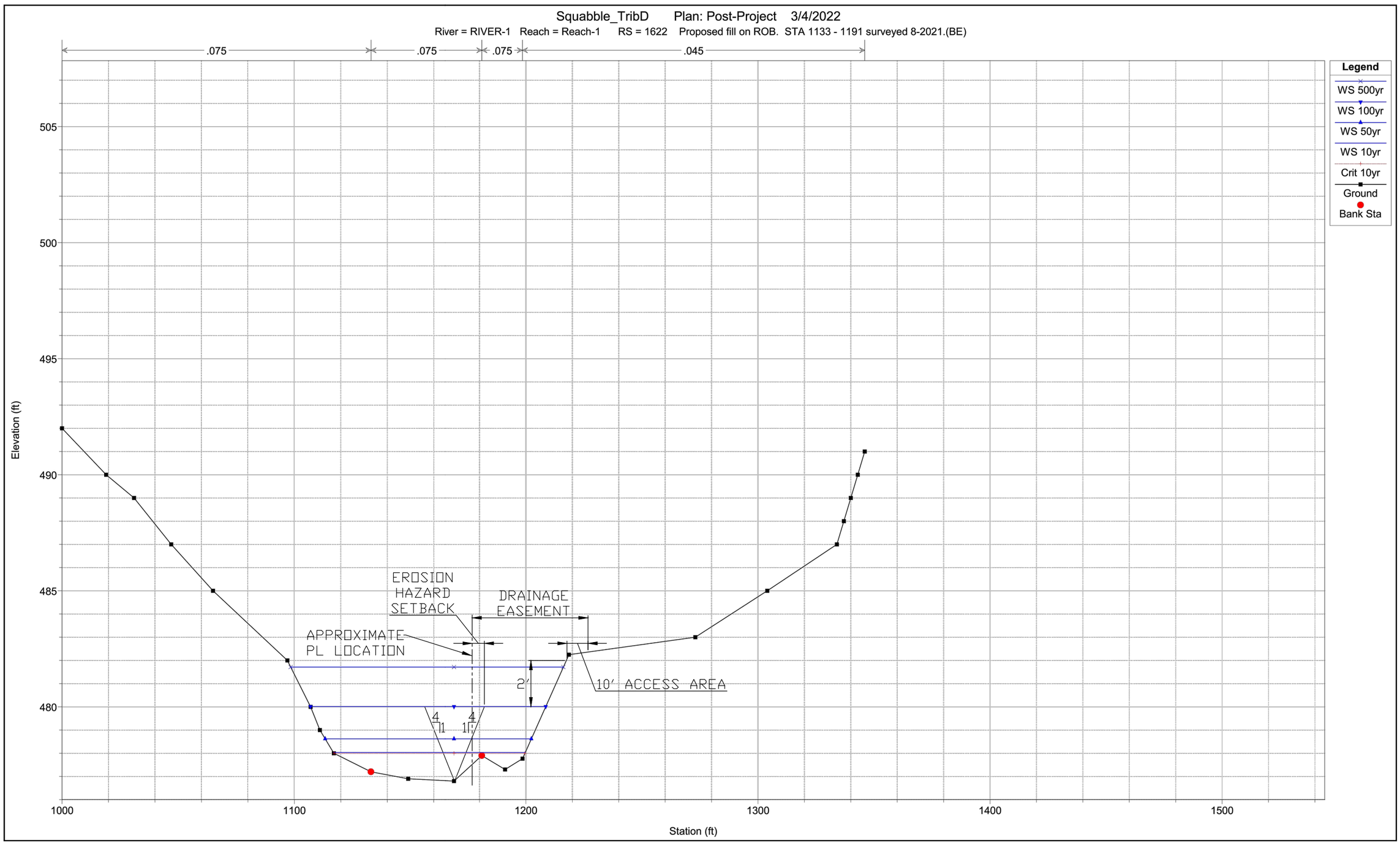
RIVER-1 Reach-1



1 in Horiz. = 400 ft 1 in Vert. = 10 ft

Squabble_TribD Plan: Post-Project 3/4/2022

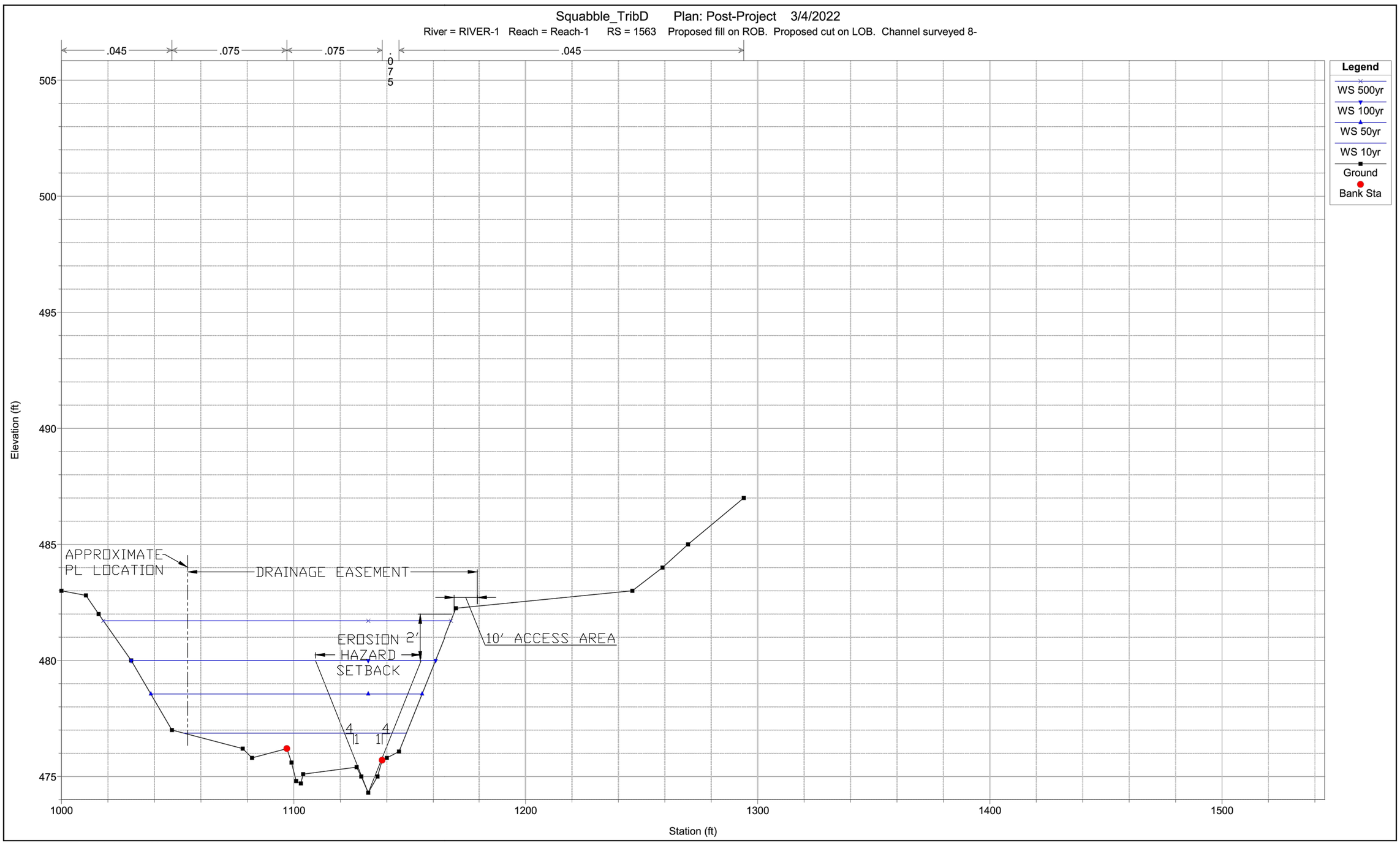
River = RIVER-1 Reach = Reach-1 RS = 1622 Proposed fill on ROB. STA 1133 - 1191 surveyed 8-2021.(BE)



1 in Horiz. = 40 ft 1 in Vert. = 4 ft

Squabble_TribD Plan: Post-Project 3/4/2022

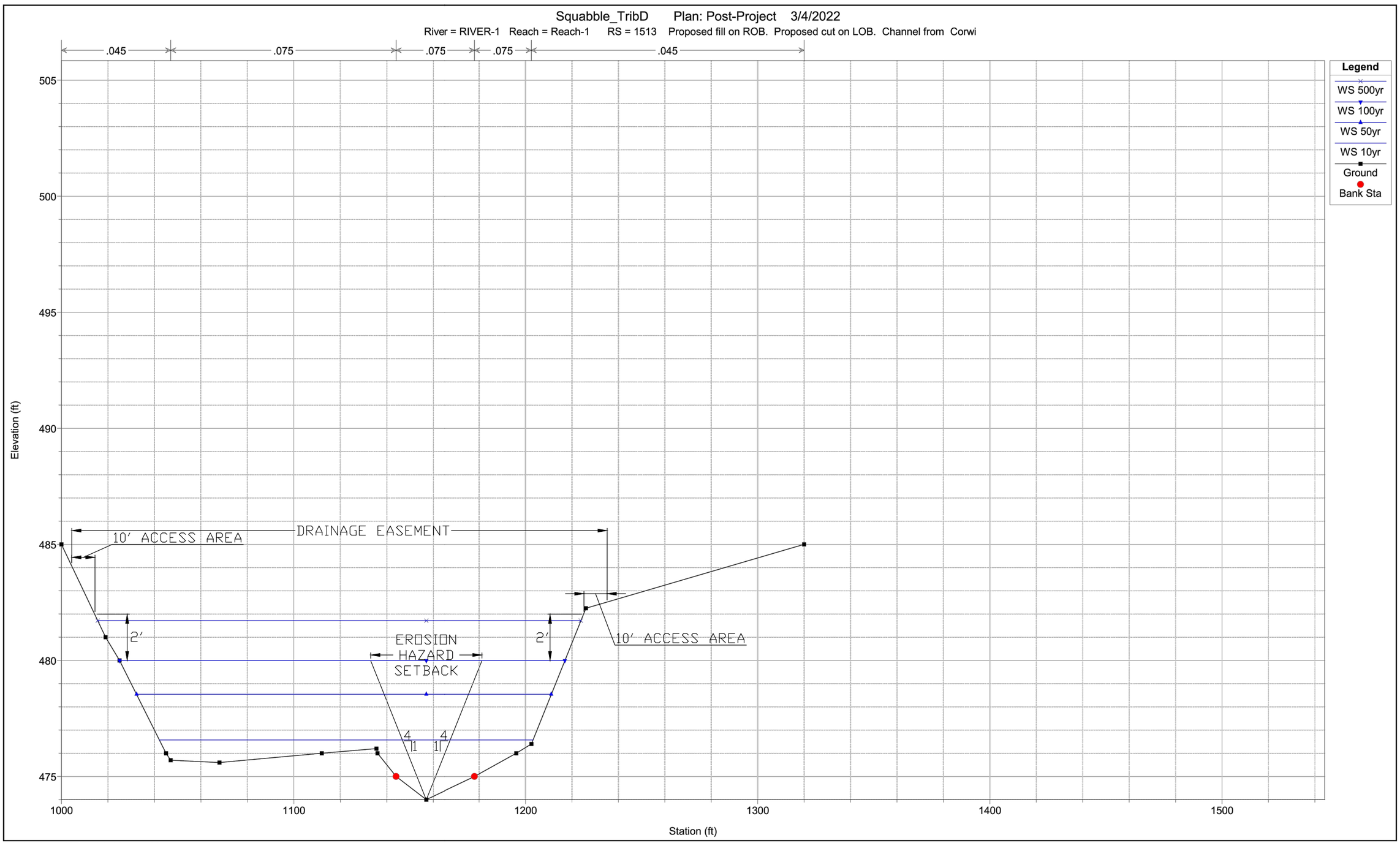
River = RIVER-1 Reach = Reach-1 RS = 1563 Proposed fill on ROB. Proposed cut on LOB. Channel surveyed 8-



1 in Horiz. = 40 ft 1 in Vert. = 4 ft

Squabble_TribD Plan: Post-Project 3/4/2022

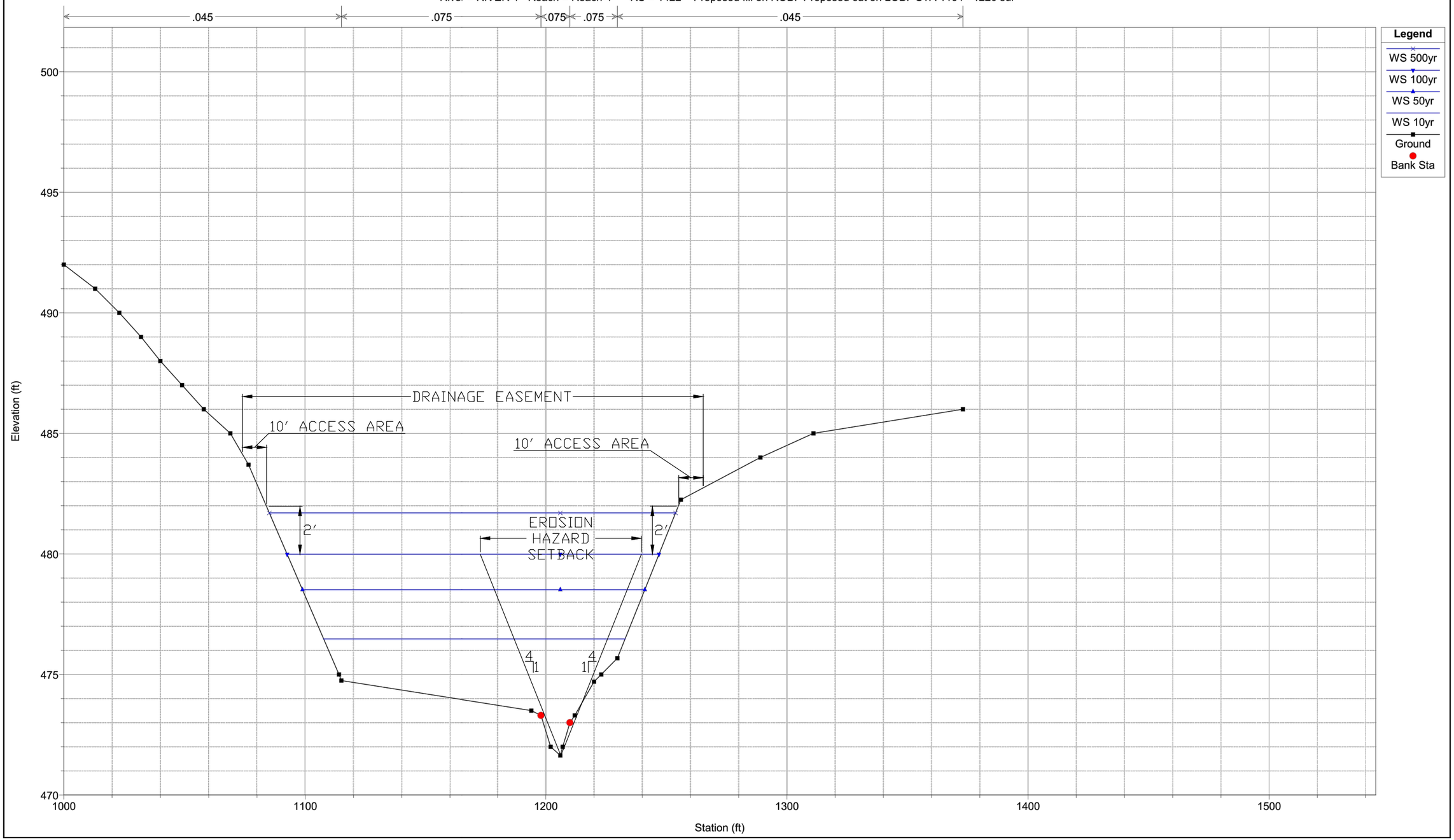
River = RIVER-1 Reach = Reach-1 RS = 1513 Proposed fill on ROB. Proposed cut on LOB. Channel from Corwi



1 in Horiz. = 40 ft 1 in Vert. = 4 ft

Squabble_TribD Plan: Post-Project 3/4/2022

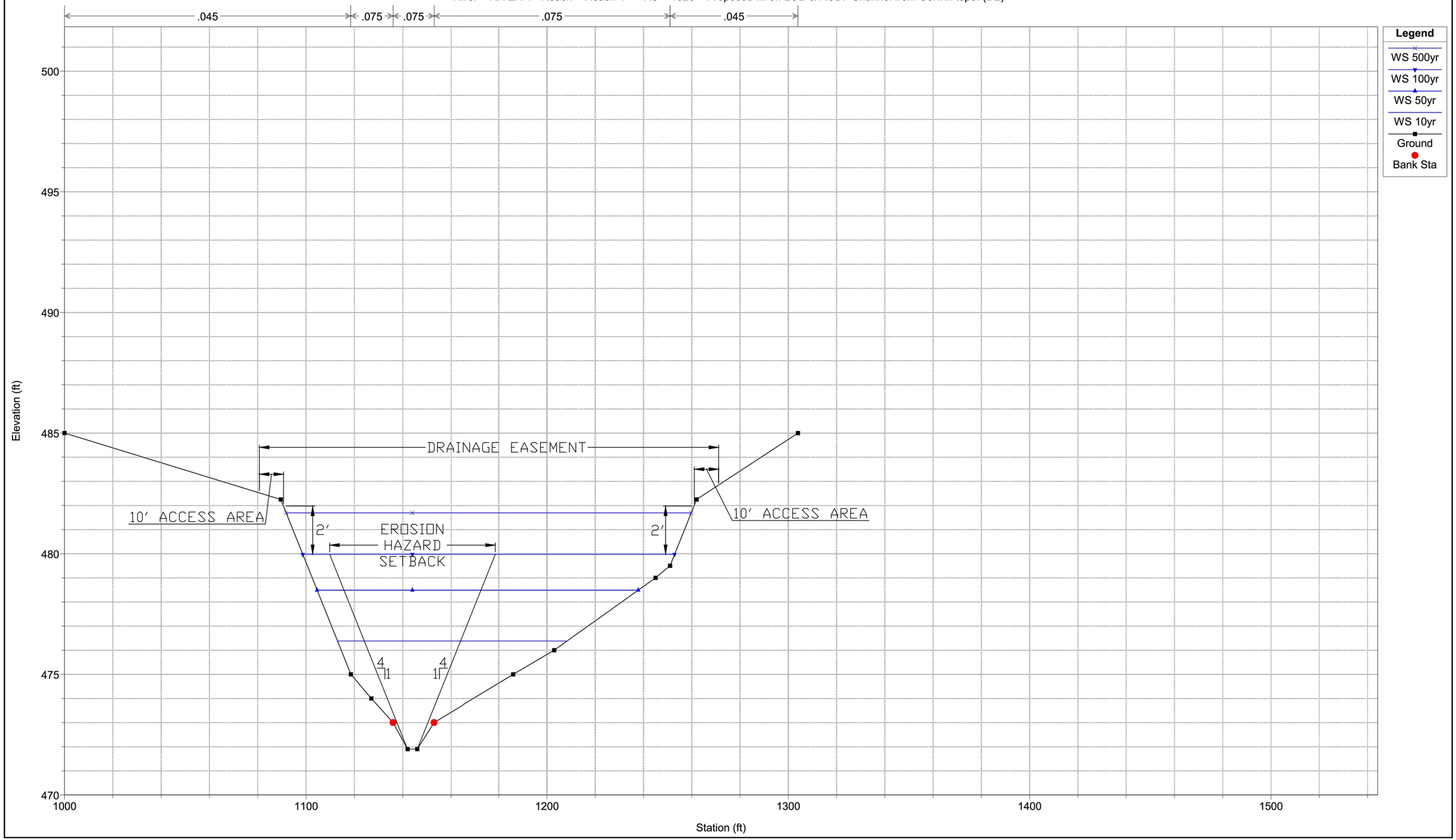
River = RIVER-1 Reach = Reach-1 RS = 1422 Proposed fill on ROB. Proposed cut on LOB. STA 1104 - 1220 sur



1 in Horiz. = 40 ft 1 in Vert. = 4 ft

Squabble_TribD Plan: Post-Project 3/4/2022

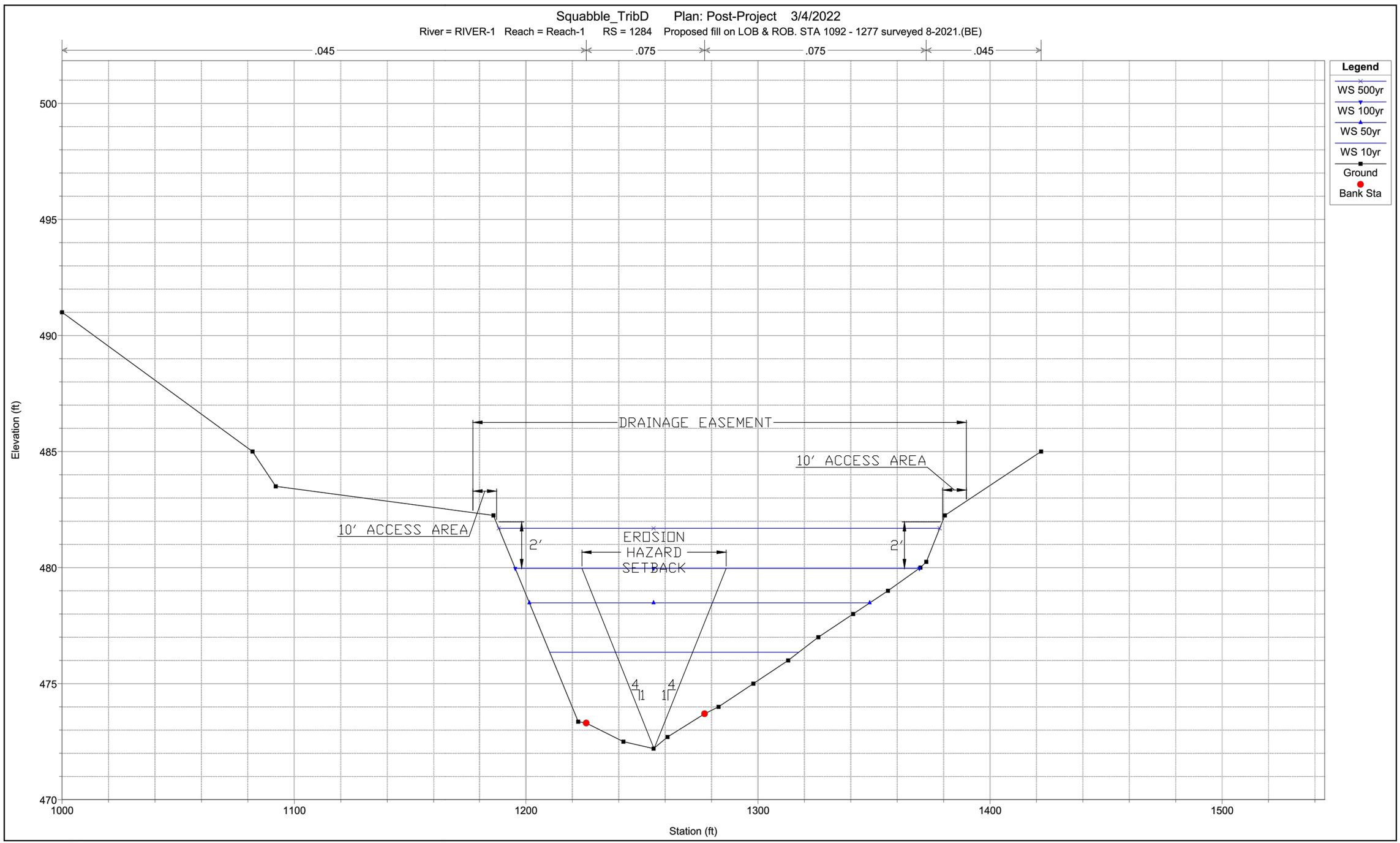
River = RIVER-1 Reach = Reach-1 RS = 1328 Proposed fill on LOB & ROB. Channel from Corwin topo. (BE)



1 in Horiz. = 40 ft 1 in Vert. = 4 ft

Squabble_TribD Plan: Post-Project 3/4/2022

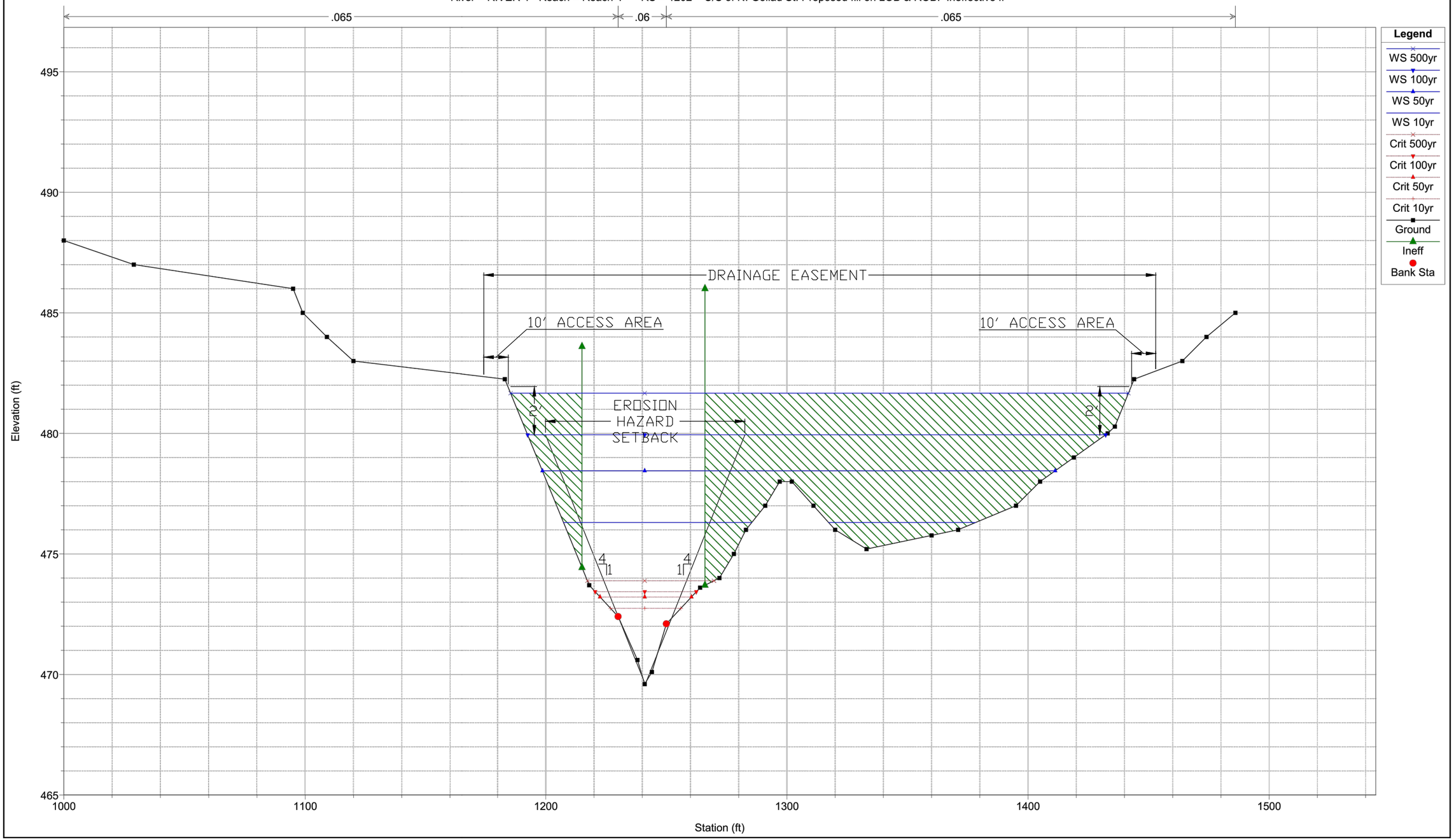
River = RIVER-1 Reach = Reach-1 RS = 1284 Proposed fill on LOB & ROB. STA 1092 - 1277 surveyed 8-2021.(BE)



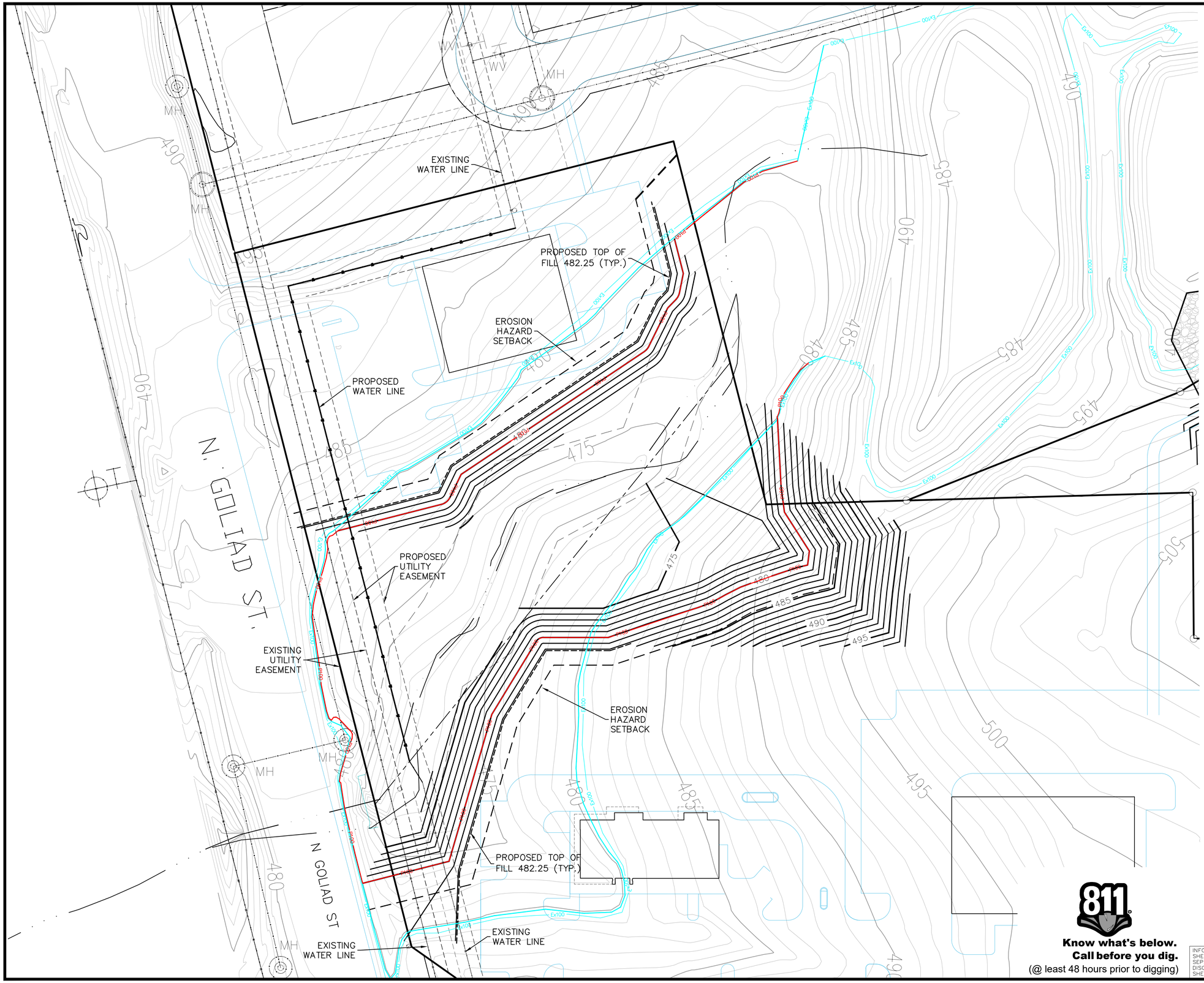
1 in Horiz. = 40 ft 1 in Vert. = 4 ft

Squabble_TribD Plan: Post-Project 3/4/2022

River = RIVER-1 Reach = Reach-1 RS = 1202 U/S of N. Goliad St. Proposed fill on LOB & ROB. Ineffective fl



1 in Horiz. = 40 ft 1 in Vert. = 4 ft



LEGEND

607	EXISTING CONTOUR
607	PROPOSED CONTOURS

NOTES

1. ALL SLOPES WITHIN ACCESSIBLE PARKING AREAS SHALL NOT EXCEED 2.0% IN ANY DIRECTION. SLOPES ALONG ALL SIDEWALKS AND ACCESSIBLE ROUTES SHALL NOT EXCEED 5.0% IN THE DIRECTION OF TRAVEL AND 2.0% IN CROSS SLOPE UNLESS OTHERWISE SPECIFIED ON THE PLAN.
2. IN UNPAVED AREAS, SLOPES SHALL NOT EXCEED 4' HORIZONTAL TO 1' VERTICAL (4:1).
3. IN PAVED AREAS, SPOT ELEVATIONS ARE TO TOP OF PAVEMENT (GUTTER LINE) UNLESS OTHERWISE NOTED. ADD 0.5' FOR TOP OF CURB. IN UNPAVED AREAS, ALL SPOT ELEVATIONS ARE TO TOP OF FINISHED GRADE, TOP OF SOD OR TOP OF LANDSCAPE ADDITIONS AS APPLICABLE.
4. REFER TO GENERAL NOTES SHEET FOR SITE ACCESSIBILITY STANDARDS AND ADDITIONAL NOTES.
5. ALL UTILITIES SHALL BE CONSTRUCTED BEGINNING AT THE TIE-IN LOCATION TO EXISTING UTILITIES (DOWNSTREAM) AND PROCEED TO PROPOSED STRUCTURES (UPSTREAM).
6. CONTRACTOR TO VERIFY THE EXISTENCE, LOCATION AND DEPTHS OF ALL EXISTING UTILITIES WITHIN THE PROJECT WORK AREA BEFORE COMMENCING CONSTRUCTION.
7. THE UTILITIES SHOWN ON THESE PLANS WERE COMPILED FROM VARIOUS SOURCES AND ARE INTENDED TO SHOW THE GENERAL HORIZONTAL AND VERTICAL LOCATIONS OF UTILITIES IN THE AREA OF CONSTRUCTION. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE UTILITY INFORMATION SHOWN ON THESE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE EXACT LOCATION OF ALL UTILITIES.
8. UNDER THE TEXAS "ONE-CALL" LAW THE CONTRACTOR MUST CONTACT THE NOTIFICATION CALL CENTER BY DIALING 811 NO SOONER THAN 14 DAYS PRIOR AND AT LEAST 48 HOURS BEFORE THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES IN ORDER TO IDENTIFY ANY UTILITIES IN CONFLICT WITH THE PROPOSED FACILITIES. CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY WHEN CONFLICTS WITH THE EXISTING UTILITIES ARE DISCOVERED.
9. IF WALLS ARE PART OF THE PROPOSED SITE DESIGN, FINISHED GROUND GRADES AT HIGH SIDE AND LOW SIDE OF WALL DO NOT NECESSARILY INDICATE WALL STRUCTURE ELEVATIONS AND ARE NOT INTENDED TO REPRESENT FOOTING DEPTHS OR STRUCTURAL WALL HEIGHTS. CONTRACTOR SHALL REFER TO STRUCTURAL PLANS AND DETAILS FOR FOOTING DEPTHS AND FOR ACTUAL WALL HEIGHTS.

NOTES TO CONTRACTOR

1. INFORMATION ON THIS SHEET AND OTHER SHEETS THROUGHOUT THIS PLAN SET IS PART OF A UNIFIED DESIGN. THE CONTRACTOR SHALL NOT SEPARATE DRAWINGS FROM THE SET FOR DISTRIBUTION TO SPECIFIC DISCIPLINES. EACH SUBCONTRACTOR SHALL BE PROVIDED WITH ALL SHEETS WITHIN THIS PLAN SET.
2. CONTRACTOR SHALL REFERENCE GENERAL NOTES SHEET FOR ADDITIONAL INFORMATION. INFORMATION ON THE GENERAL NOTES SHEET IS PART OF A UNIFIED DESIGN AND IS PERTINENT TO THIS PLAN SHEET.
3. CONTRACTOR SHALL REFERENCE ALL IRRIGATION PLANS, MEP SITE PLANS, AND CIVIL ENGINEERING UTILITY PLANS FOR INFORMATION REGARDING SLEEVES BENEATH PAVEMENT.

BENCHMARKS

BM#1:
CITY OF ROCKWALL MONUMENT 14

NAVD88
ELEV.=497.13

811 Know what's below. Call before you dig. (@ least 48 hours prior to digging)

INFORMATION ON THIS SHEET IS PERTINENT TO ALL OTHER DESIGN SHEETS IN THIS SET OF DRAWINGS. THE CONTRACTOR SHALL NOT SEPARATE DRAWINGS FROM THE SET FOR DISTRIBUTION TO SPECIFIC DISCIPLINES. EACH SUBCONTRACTOR SHALL BE PROVIDED WITH ALL SHEETS WITHIN THIS PLAN SET.

BANNISTER ENGINEERING
240 N. Mitchell Road | Mansfield, TX 76063 | 817.842.2094 | 817.842.2095 fax
REGISTRATION # F-10599 (TEXAS)

STONE CREEK RETAIL
ROCKWALL, TEXAS

FLOOD STUDY GRADING PLAN (1 OF 2)

No.	Date	Revision Description

PROJECT NO.: 262-21-001

STATE OF TEXAS
MICHAEL J. MOORE
128498
LICENSED PROFESSIONAL ENGINEER
3/15/2022

SHEET NUMBER
20

File: B:\Clients\262 (DuWest)\262-21-001 (Stone Creek Retail - Rockwall)\Flood Study\FS Grading Plan.dwg || Date Plotted: 3/15/2022 3:42 PM || Plotted By: rmoore

PROPOSED 166 SQ.YD.
GROUTED ROCK RIPRAP

EXISTING
OUTLET CONTROL
STRUCTURE
INSTALL
TRASH RACK

EXISTING
TOP OF BERM 502.0

PROPOSED 65 SQ.YD.
CONCRETE PILOT
CHANNEL

PROPOSED
EMERGENCY SPILLWAY
FL = 500.0
46' WIDE

PROPERTY LINE

GRAPHIC SCALE

40 0 20 40 80

(IN FEET)
1 inch = 40 ft.

LEGEND

607	EXISTING CONTOUR
607	PROPOSED CONTOURS

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BENCHMARKS

BM#1:
CITY OF ROCKWALL MONUMENT 14

NAVD88
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811
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Call before you dig.
(@ least 48 hours prior to digging)

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BANNISTER ENGINEERING
240 N. Mitchell Road | Mansfield, TX 76063 | 817.842.2094 | 817.842.2095 fax
REGISTRATION # F-10599 (TEXAS)

STONE CREEK RETAIL
ROCKWALL, TEXAS
FLOOD STUDY GRADING PLAN (2 OF 2)

No.	Date	Revision Description

PROJECT NO.: 262-21-001

STATE OF TEXAS
MICHAEL J. MOORE
128498
LICENSED
PROFESSIONAL ENGINEER
3/15/2022

SHEET NUMBER
20

File: B:\Clients\262 (DuWest)\262-21-001 (Stone Creek Retail – Rockwall)\Flood Study\FS Grading Plan.dwg || Date Plotted: 3/15/2022 3:44 PM || Plotted By: mmoore

February 10, 2023

TO: Bowen Hendrix
DuWest Realty, LLC
4403 North Central Expressway, Suite 200
Dallas, TX 75025

FROM: Henry Lee, AICP
City of Rockwall Planning and Zoning Department
385 S. Goliad Street
Rockwall, TX 75087

SUBJECT: SP2022-057; *Site Plan for Chipotle*

Bowen Hendrix**:**

This letter serves to notify you that the above referenced case (*i.e. Site Plan*) that you submitted for consideration by the City of Rockwall was approved by the Planning and Zoning Commission on January 10, 2023. The following is a record of all recommendations, voting records and conditions of approval:

Staff Recommendations

(1) All staff comments provided by the Planning, Engineering and Fire Department must be addressed prior to the submittal of engineering plans.

(2) Before any Certificates of Occupancy (CO's) are issued for future tenants, documentation shall be provided indicating that any proposed Roof Top Units (RTU's) will meet the screening requirements and will not be visible from any adjacent property, open space, or public right-of-way.

(3) Any construction resulting from the approval of this *Site Plan* shall conform to the requirements set forth by the Unified Development Code (UDC), the International Building Code (IBC), the Rockwall Municipal Code of Ordinances, city adopted engineering and fire codes and with all other applicable regulatory requirements administered and/or enforced by the state and federal government.

Planning and Zoning Commission
On January 10, 2023, the Planning and Zoning Commission approved a motion to approve the site plan by a vote of 6-0, with Commissioner Hustings absent.

Should you have any questions or concerns regarding your zoning case, please feel free to contact me a (972) 771-7745.

Sincerely,

Henry Lee, AICP, *Planner*
City of Rockwall Planning and Zoning Department

Lee, Henry

From: Lee, Henry
Sent: Tuesday, December 20, 2022 2:16 PM
To: 'Bowen Hendrix'
Subject: Project Comments SP2022-057 Chipotle
Attachments: Project Comments (12.19.2022).pdf; Engineering Mark-Ups (12.19.2022).pdf

Good Afternoon,

Attached are the project comments and engineering mark-ups for your case. The meeting schedule for this case is as follows:

Planning and Zoning Commission Work Session: December 27,2022
Planning and Zoning Commission Public Hearing: January 10, 2023

Please note that all meetings will be held at 6:00 PM at 385 S. Goliad Street in the City Council Chambers; the Architectural Review Board (ARB) meets at 5:00 PM just before the Planning and Zoning Commission meetings. Please also note that a representative is required to be at all meetings. Should you have any questions please let me know.

Thank you,

Henry Lee, AICP
Planner
Planning & Zoning Department
972.772.6434
HLee@rockwall.com
385 S. Goliad Street, Rockwall, TX 75087

Lee, Henry

From: Lynn Rowland <lynn@claymooreeng.com>
Sent: Tuesday, January 3, 2023 4:07 PM
To: Bowen Hendrix; Lee, Henry
Cc: Cole Blocker; Drew Donosky
Subject: Re: FW: Project Comments SP2022-057 Chipotle

Henry,

See link for our site plan/preliminary engineering resubmittal for the above project. Please let us know if you need anything else.

https://claymoore.egnyte.com/fl/YbAbRs40n0

-Lynn

Lynn Rowland
1903 Central Drive
Suite 406
Bedford, Tx 76021
Direct: 817.458.8976
Phone: 817.281.0572 Ex. 6

On Tue, Dec 20, 2022 at 4:02 PM Bowen Hendrix <bowen@duwestrealty.com> wrote:

> **From:** Lee, Henry <HLee@rockwall.com>
> **Sent:** Tuesday, December 20, 2022 2:16 PM
> **To:** Bowen Hendrix <bowen@duwestrealty.com>
> **Subject:** Project Comments SP2022-057 Chipotle
>
> Good Afternoon,

Attached are the project comments and engineering mark-ups for your case. The meeting schedule for this case is as follows:

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Thank you,

Henry Lee, AICP
Planner
Planning & Zoning Department
972.772.6434
HLee@rockwall.com
385 S. Goliad Street, Rockwall, TX 75087

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Lee, Henry

From: Lynn Rowland <lynn@claymooreeng.com>
Sent: Thursday, January 5, 2023 11:21 AM
To: Lee, Henry; Amira Abdallah
Cc: Bowen Hendrix; Drew Donosky
Subject: Re: Chipotle Remaining Comments SP2022-057

Henry,

We have addressed the comments and the updated plans are in the link below. Please let us know if there is anything else that you need.

https://claymoore.egnyte.com/fl/96Ctw1smPc

-Lynn

Lynn Rowland
1903 Central Drive
Suite 406
Bedford, Tx 76021
Direct: 817.458.8976
Phone: 817.281.0572 Ex. 6

On Wed, Jan 4, 2023 at 9:48 AM Lee, Henry <HLee@rockwall.com> wrote:

> Good Morning,
>
> Attached are the remaining comments related to your site plan case for Chipotle. There are a number of comments still unaddressed that must be corrected. I would either need these fully corrected by tomorrow at noon, or you will need to request an extension. Please let me know if you have any questions.
>
> Thank you,

Henry Lee, AICP
Planner
Planning & Zoning Department
972.772.6434
HLee@rockwall.com
385 S. Goliad Street, Rockwall, TX 75087

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Lee, Henry

From: Taylor Grandorf <taylor@roguearchitects.com>
Sent: Thursday, January 12, 2023 3:55 PM
To: Lee, Henry
Cc: Bowen Hendrix; Ashley Moreland; Drew Donosky; Lynn Rowland
Subject: RE: Site Plan Approval for Chipotle
Attachments: Facade Plan_Rockwall North Shell_011222.pdf

Henry,

See attached per our conversation. Appreciate the additional explanation on what the board is looking for.

Taylor Grandorf, AIA, NCARB
Architect|Project Manager

513 Main Street #300, Fort Worth, TX 76102
Office • 817.820.0433 | Direct • 817.529.6882

From: Lynn Rowland <lynn@claymooreeng.com>
Sent: Thursday, January 12, 2023 3:39 PM
To: Lee, Henry <HLee@rockwall.com>
Cc: Bowen Hendrix <bowen@duwestrealty.com>; Taylor Grandorf <taylor@roguearchitects.com>; Ashley Moreland <ashley@roguearchitects.com>; Drew Donosky <Drew@claymooreeng.com>
Subject: Re: Site Plan Approval for Chipotle

Henry,

Thanks for the clarification. Here is the updated facade plan.

Let us know if you need anything else.

Lynn Rowland
1903 Central Drive
Suite 406
Bedford, Tx 76021
Direct: 817.458.8976
Phone: 817.281.0572 Ex. 6

On Thu, Jan 12, 2023 at 2:59 PM Lee, Henry <HLee@rockwall.com> wrote:

Good Afternoon,

Below is the email I sent to Taylor just a while ago. Let me know if you have any questions.

“On the taller stucco parapet, which is shown in your email below, they wanted it to be 2-feet deeper towards the center of the building, not outward. This will not cause any changes to the building footprint, rather just the building elevations. Hopefully this clarifies things, but feel free to contact me if you have any questions.”

Thank you,

Henry Lee, AICP
Planner
Planning & Zoning Department
972.772.6434
HLee@rockwall.com
385 S. Goliad Street, Rockwall, TX 75087

From: Bowen Hendrix <bowen@duwestrealty.com>
Sent: Thursday, January 12, 2023 2:53 PM
To: Lynn Rowland <lynn@claymooreeng.com>; Taylor Grandorf <taylor@roguearchitects.com>; Lee, Henry <HLee@rockwall.com>
Cc: Ashley Moreland <ashley@roguearchitects.com>; Drew Donosky <Drew@claymooreeng.com>
Subject: RE: Site Plan Approval for Chipotle

Henry,

You are referring to the parapets correct?

From: Lynn Rowland <lynn@claymooreeng.com>
Sent: Thursday, January 12, 2023 2:46 PM
To: Taylor Grandorf <taylor@roguearchitects.com>
Cc: Ashley Moreland <ashley@roguearchitects.com>; Bowen Hendrix <bowen@duwestrealty.com>; Drew Donosky

<Drew@claymooreeng.com>
Subject: Re: Site Plan Approval for Chipotle

Taylor,

I think they are only talking about the parapets, not the building. Please get with Henry to confirm.

Lynn Rowland
1903 Central Drive
Suite 406
Bedford, Tx 76021
Direct: 817.458.8976

Phone: 817.281.0572 Ex. 6

On Thu, Jan 12, 2023 at 10:36 AM Taylor Grandorf <taylor@roguearchitects.com> wrote:

> Hi Lynn,
>
> Received and we're looking into this.
>
> If I'm understanding what they are asking for correctly, we will need to modify the site layout to make room for an additional 2'-0" on the entry tower. Before I modify our model too far, do we have room on the site to do this?

Taylor Grandorf, AIA, NCARB

Architect|Project Manager

513 Main Street #300, Fort Worth, TX 76102

Office • 817.820.0433 | Direct • 817.529.6882

From: Lynn Rowland <lynn@claymooreeng.com>
Sent: Wednesday, January 11, 2023 4:44 PM
To: Bowen Hendrix <bowen@duwestrealty.com>; Taylor Grandorf <taylor@roguearchitects.com>; Drew Donosky <Drew@claymooreeng.com>
Subject: Fwd: Site Plan Approval for Chipotle

Taylor,

See below for comments from P&Z last night.

Lynn Rowland
1903 Central Drive
Suite 406
Bedford, Tx 76021
Direct: 817.458.8976

Phone: 817.281.0572 Ex. 6

---------- Forwarded message ---------
From: **Lee, Henry** <HLee@rockwall.com>
Date: Wed, Jan 11, 2023 at 4:41 PM
Subject: Site Plan Approval for Chipotle
To: Bowen Hendrix <bowen@duwestrealty.com>
Cc: Lynn Rowland <lynn@claymooreeng.com>

Good Afternoon,

I did not get the chance to follow up with you last night, but I wanted to make sure you knew what I needed from you at this point. Last night the P&Z approved you case with the condition that the stucco parapets have 2-feet of depth added to them. Once this is updated please email me the revised elevations so I can confirm the changes. I will then give you the go ahead to send me a hard copy of the plans for signing. If you have any questions please let me know.

Thank you,

Henry Lee, AICP
Planner
Planning & Zoning Department
972.772.6434
HLee@rockwall.com
385 S. Goliad Street, Rockwall, TX 75087

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