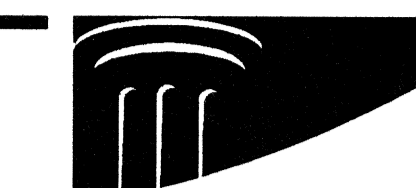


REF: C2 GRADING PLAN DATED 01-21-13 BY BENTLEY ENGINEERING, INC. FOR RETAINING WALL LOCATIONS.

D&E STRUCTURES
CONSULTING ENGINEERS

1010 E. ARAPAHO RD., SUITE 106
RICHARDSON, TX 75081 214-741-3085
TX. FIRM REG. # F-870

THE ENGINEER'S SEAL ON THIS PLAN WAS ELECTRONICALLY APPLIED BY LOKI KOTTKAMP REGISTRATION NO. 93691 ON 02-26-13 AND IS NOT CONSIDERED VALID FOR ANY OTHER CONSTRUCTION OTHER THAN WHAT IS SHOWN HEREIN.



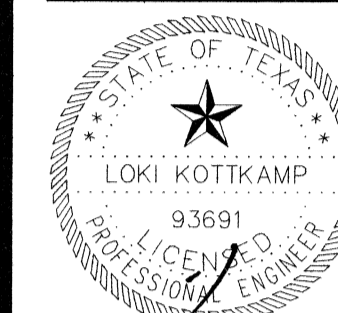
Architecture - Design - Planning

Matthew King
Architect

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12/21/12



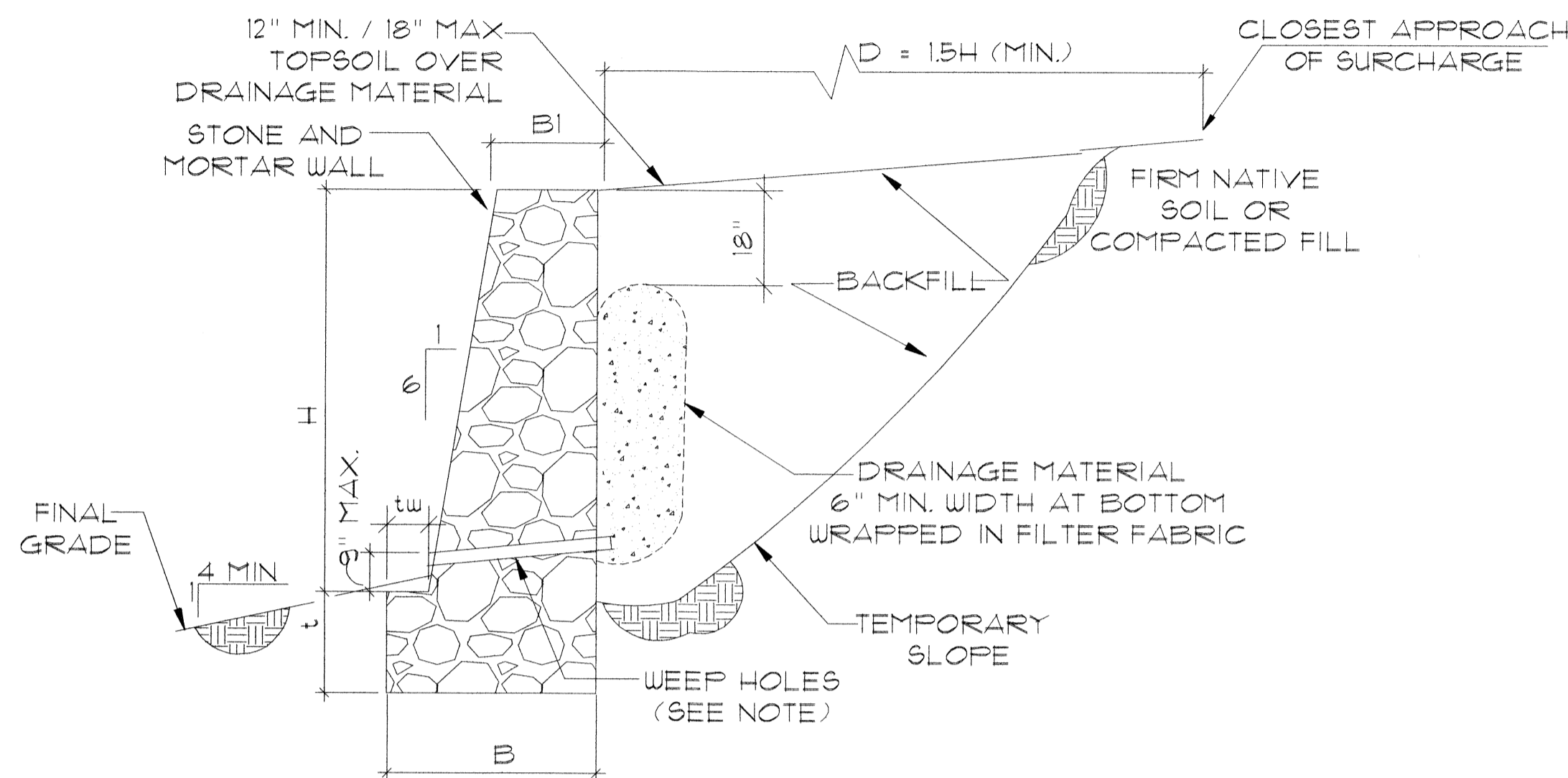
2-26-13

Project:
Childrens Park 2
Learning Center
Highway 66
Rockwell, Texas 75087

Scale: as noted
Issue For: CONSTRUCTION

S5 STONE RW
DETAILS

Sheet Number



TYPICAL RETAINING WALL SECTION
WALLS 1'-0" TO 6'-0" IN HEIGHT

TYP. WALL SCHEDULE						
HEIGHT (H)	1.5'	2'	3'	4'	5'	6'
BASE WIDTH (B)	15"	16"	22"	25"	32"	36"
TOP WIDTH (BI)	12"	12"	12"	12"	12"	12"
EMBEDMENT (L)	6"	9"	10"	12"	16"	20"
TOE WIDTH (tw)	0"	0"	2"	5"	10"	12"

SURCHARGE WALL SCHEDULE						
HEIGHT (H)	1.5'	2'	3'	4'	5'	6'
BASE WIDTH (B)	19"	20"	28"	31"	40"	45"
TOP WIDTH (BI)	12"	12"	12"	12"	12"	12"
EMBEDMENT (L)	7.5"	11"	13"	15"	20"	25"
TOE WIDTH (tw)	4"	4"	10"	11"	18"	21"

BUILDING CODE OR APPLICABLE DESIGN STANDARDS

- INTERNATIONAL BUILDING CODE, 2009 EDITION

REFERENCED GEOTECHNICAL REPORT IF AVAILABLE/APPLICABLE

- FIRM: INEC TERRADYNE, INC.
- REPORT NUMBER: D121410
- DATE: 12-6-12
- ALLOWABLE BEARING CAPACITY (FOOTING): 1500 PSF
- RECOMMENDED ACTIVE EQUIVALENT FLUID PRESSURE: 35 PSF PER NOTE 3.

GENERAL

- THESE SPECIFICATIONS ARE APPLICABLE ONLY FOR WALLS 1'-6" TO 6'-0" IN RETAINED HEIGHT (H).
- TEMPORARY SLOPE - BY BUILDER, AS REQUIRED FOR SAFETY.
- LOADS AND FACTORS OF SAFETY

ACTIVE PRESSURES USED IN DESIGN FOR THE SOIL BACKFILL WERE DERIVED FROM COLUMB'S THEORY OF SOIL PRESSURE, CORRESPONDING TO A CLEAN GRAVEL-SAND BACKFILL PLACED AS SHOWN WITH AN INTERNAL FRICTION ANGLE OF 33. EQUIVALENT FLUID PRESSURE IS APPROXIMATELY 35 PSF PER FOOT OF RETAINED SOIL DEPTH.

PASSIVE PRESSURES FOR THE SOIL IN FRONT OF THE WALL FOOTING WERE DERIVED FROM COLUMB'S THEORY OF SOIL PRESSURE BASED ON IN-SITU SOIL OR PREPARED COMPACTED FILL PER THE REFERENCED GEOTECHNICAL REPORT ABOVE.

ALLOWABLE BEARING PRESSURES WERE BASED ON THE REFERENCED GEOTECHNICAL REPORT ABOVE. IF NO REPORT WAS MADE AVAILABLE, A MINIMUM ALLOWABLE BEARING PRESSURE OF 1500 PSF WAS USED FOR DESIGN.

SURCHARGE LOADS - UNLESS NOTED OTHERWISE ON THE DETAILS AND SCHEDULES SURCHARGE LOADS ARE NOT EXPECTED FOR STRUCTURES LOCATED WITHIN D=1.5H DISTANCE FROM RETAINING WALLS.

FACTORS OF SAFETY - A FACTOR OF SAFETY OF 2.0 FOR OVERTURNING AND 1.5 FOR SLIDING WAS USED FOR THE DETAILS AND SCHEDULES SHOWN ON THE FOLLOWING SHEETS.

4. UNLESS NOTED OTHERWISE THE RETAINING WALL DETAILS AND SCHEDULES SHOWN DO NOT ACCOUNT FOR GLOBAL SLOPE STABILITY.

IF GLOBAL SLOPE STABILITY IS A CONCERN, A GEOTECHNICAL FIRM WITH EXPERIENCE IN GLOBAL STABILITY ANALYSES SHOULD BE RETAINED IN ORDER TO PROVIDE RECOMMENDATIONS FOR THE WALL DESIGN.

5. COMPACTED BACKFILL SHALL BE PROPERLY PLACED AND COMPACTED TO MINIMUM 95 PERCENT OF STANDARD PROCTOR COMPACTION VERIFICATION BY OTHERS.

6. WEEP HOLE DRAINS - PROVIDE MINIMUM 3/4" WEEP HOLES @ 10'-0".

7. IF CONDITIONS CHANGE FROM THOSE DESCRIBED HEREIN, NOTIFY D&E STRUCTURES IMMEDIATELY TO DETERMINE THE EFFECT, IF ANY, ON THE RETAINING WALL DESIGN.

8. FORMED VERTICAL CONTROL JOINTS ARE RECOMMENDED TO CONTROL SHRINKAGE CRACK LOCATIONS. CONTROL JOINTS SHOULD BE SPACED AT 20'-0" O.C. MAX. JOINTS SHALL BE AT LEAST 1/2" x 4".

9. DRAINAGE SEWER OR OTHER MISCELLANEOUS CONDUIT SHALL NOT BE PLACED IN FRONT OF THE TOE OF THE WALL WITHOUT COORDINATION AND APPROVAL WITH D&E STRUCTURES.

MATERIALS

1. ALL MORTAR SHALL BE TYPE "S", 2500 PSF. FULL HEAD 4 BED JOINT MORTAR IS REQUIRED. TESTING BY OTHERS, IF DESIRED SHALL CONFORM TO ASTM C270.

2. ALL STONE SHALL BE EARTH-TONE COLORED, CLEAN, HARD, DENSE, AND WEATHER RESISTANT 12" TO 18" MILSAP SANDSTONE FROM A MILSAP ROCK QUARRY. THE AVERAGE DENSITY OF THE SANDSTONE SHALL RANGE FROM 135 PCF TO 145 PCF.

3. DRAINAGE MATERIAL - ON WALLS OVER 4'-0" IN HEIGHT, USE 1 1/2" TO 3" DIAMETER CRUSHED CONCRETE AND UP TO 6" DIAMETER SANDSTONE ROCK PLACED NOT COMPACTED. SANDSTONE NOT TO EXCEED 20% OF GRAVEL BACKFILL. WRAP IN FILTER FABRIC. FOR WALLS LESS THAN 4'-0" IN HEIGHT, USE 1 1/2" TO 6" CRUSHED CONCRETE OR SANDSTONE ROCK WITH NO RESTRICTIONS ON PERCENTAGE OF USE FOR EITHER MATERIAL. WRAP IN FILTER FABRIC.

4. FILTER FABRIC SHALL BE CONTRACTORS SELECT 3300 BY DEWITT, INC. OR APPROVED EQUAL.

FOOTINGS

- ALL WALLS SHALL BE PROVIDED WITH A STONE AND MORTAR LEVELING COURSE AT THE BASE
- ALL WALLS SHALL BE BEDDED IN FIRM IN-SITU OR COMPACTED FILL TO THE MINIMUM DEPTH SPECIFIED ON THE PLAN.

INSPECTION REQUIREMENTS

- BY OR UNDER THE SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER EXPERIENCED IN RETAINING WALL DESIGN AND CONSTRUCTION.
- FOOTING WIDTH AND EMBEDMENT
- DRAIN INSTALLATION
- CONTROL JOINT LOCATIONS
- INSPECTION IS PERFORMED ONLY TO DEVELOP A GENERAL OPINION REGARDING THE BUILDER'S COMPLIANCE WITH PROJECT SPECIFICATIONS. NO WARRANTY OR GUARANTEE IS PROVIDED.

EMBED DEPTH NOTES:

IN AREAS WHERE THE SLOPE BELOW THE WALL IS GREATER THAN OR EQUAL TO 3:1, THE MINIMUM EMBED DEPTH SHALL BE 3'-0"

IN AREAS WHERE THE FRONT OF THE WALL IS ADJACENT TO A POND OR SIMILAR BODY OF WATER THE MINIMUM EMBED DEPTH SHALL BE INCREASED BY 1'-4" TO THE SCHEDULED EMBED DEPTH ABOVE.