

# HERENA USA. E.LOMBARD STREET

## 1622-1634 E LOMARD STREET

### BALTIMORE, MARYLAND, 21212



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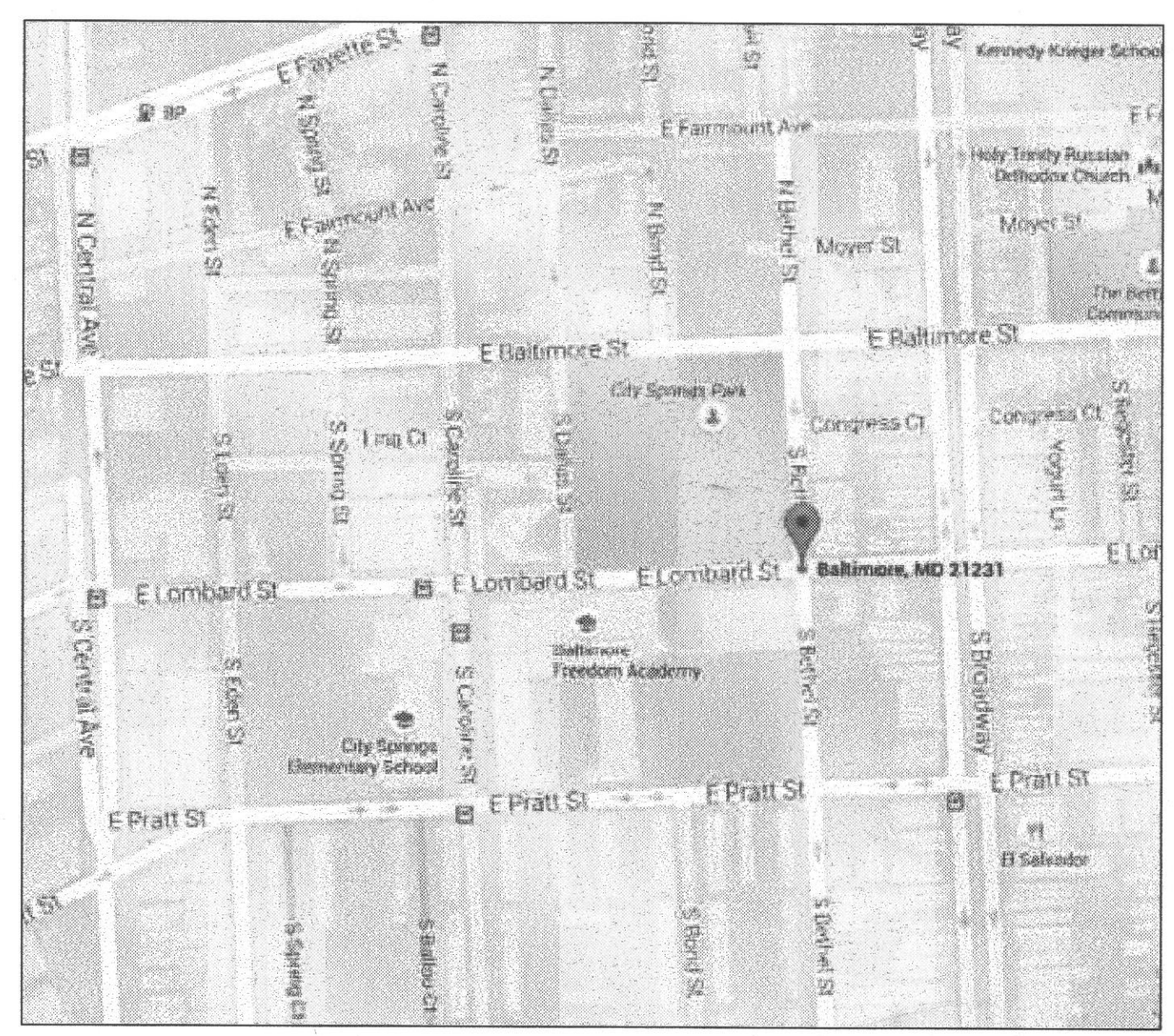
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**PROJECT NARRATIVE**

THE PROJECT IS LOCATED AT E LOMBARD STREET. THE SITE CURRENTLY IS OCCUPIED BY AN ABANDONED WAREHOUSE. THE PROPOSED DEVELOPMENT CONSISTS OF THE CONSTRUCTION OF 23 TOWNHOUSE UNITS FRONTING BETHEL STREET AND IRON ALLEY.

UTILITIES WILL BE PROVIDE FROM BETHEL STREET AND IRON ALLEY. STORM WATER WILL BE CONVEYED THROUGH A SERIES OF MICRO BIORETENTION FACILITIES LOCATED IN THE COURTYARD OF THE DEVELOPMENT AND ULTIMATELY PIPED VIA 15 INCH RCP TO AN EXISTING INLET LOCATED AT THE INTERSECTION OF LOMBARD AND BETHEL STREET.



**VICINITY MAP**  
 SCALE: 1"=300'

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**Natural Resources Inventory**

Federal Regulated			State Regulated			Local Regulated		
Present? (Y/N)	Feature	Legend Symbology	Present? (Y/N)	Feature	Legend Symbology	Present? (Y/N)	Feature	Legend Symbology
N	Wetlands		N	Tidal and Nontidal Wetlands		N	Steep Slopes	
N	Major Waterways		N	Wetlands of Special State Concern		N	Highly Erodible Soils	See Soils Table
N	Floodplains		N	Wetland Buffers		N	Enhanced Stream Buffers	
			N	Stream Buffers		N	Topography / Slopes	
			N	Perennial Streams		N	Springs	
			N	Floodplains		N	Seeps	
			N	Forests		N	Intermittent Streams	
			N	Forest Buffers		N	Vegetative Cover	
			N	Critical Areas		N	Soils	See Soils Table
						N	Bedrock/Geology	
						N	Existing Drainage Area	
						N	Existing SWM Facilities	

Updated 3/1/2016

**Soils Data Table**

Symbol	Soil Series	Slope	Hydric	Highly Erodible? (K)	Hydrologic Classification
44UC	Urban Land	0 to 15%	N/A	N/A	D

EROSION AND SEDIMENT CONTROL  
 STORMWATER MANAGEMENT  
**APPROVED**  
 SEDIMENT CONTROL AND STORMWATER MANAGEMENT REPRESENTATIVE  
 6/15/17  
 DATE

REV	DESCRIPTION	DATE
4	SWM-ES	05/20/2017
3	SWM-ES	09/29/2016
2	SWM-ES	08/15/2016
1	BID-SET	02/5/2016

REVISION HISTORY



Date: 02/5/2016  
 Project # 1501.01

CIVIL COVER SHEET

C-0.0.0

**ESD # 7121**

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
 License No. 21718, Expiration Date: 2017-09-16

GENERAL NOTES:

- 1. OBTAIN PROPER PERMITS.
2. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE PUBLIC WORKS DEVELOPER'S AGREEMENT AND THE BOOK OF STANDARDS FOR BALTIMORE CITY DEPARTMENT OF PUBLIC WORKS.
3. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE LOCATION. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THE EXACT LOCATION OF ALL EXISTING UNDERGROUND UTILITIES BEFORE COMMENCING ANY WORK. THE CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR THE COST OF ANY AND ALL DAMAGES CAUSED AS A RESULT OF HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL EXISTING UTILITIES TO REMAIN.
4. BEFORE BEGINNING CONSTRUCTION, CONTRACTOR SHALL PERFORM TEST PIT(S) TO VERIFY LOCATION OF ALL EXISTING UTILITIES AND CLEARANCE FROM NEW WORK
5. ALL TRENCH REPAIRS TO BE MADE IN ACCORDANCE WITH DETAIL 2. FOUND ON SHEET B OF 8. COBBLESTONES ARE TO BE REMOVED, CLEANED AND REUSED WHEN THE TRENCH IS REPAIRED WHERE THE TRENCH CROSSES THE EXISTING RAIL TRACKS, EXCAVATE UNDER THE RAILS LEAVING THEM IN PLACE
6. CURBS REMOVED SHALL BE REPLACED IN KIND. CURBS SHALL BE REPLACED TO THE NEAREST EXISTING JOINT AS SHOWN IN DETAIL 3 ON SHEET 8 OF 8.
7. SIDEWALK DISTURBED SHALL BE REPAIRED IN KIND, JOINT TO JOINT.
8. TEST PIT ALL UTILITY CROSSINGS INCLUDING TIE-IN POINTS PRIOR TO ANY NEW WORK. ANY DEVIATIONS IN DESIGN CAUSED BY THE TEST PIT INFORMATION WILL REQUIRE RED LINE REVISIONS SUBMITTED TO THE WATER AND WASTEWATER ENGINEERING DIVISION FOR APPROVAL.
9. STREET LIGHT SYSTEM SHALL BE PROTECTED AND MAINTAINED DURING CONSTRUCTION
10. NOTIFY WATER AND WASTEWATER MAINTENANCE DIVISION (396-1663) AT LEAST TWO (2) WEEKS PRIOR TO START-UP OF CONSTRUCTION.
11. CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN WORKING NEAR OR OVER EXISTING WATER, GAS AND ELECTRIC FACILITIES.
12. FULL TRENCH COMPACTION IS REQUIRED THROUGHOUT. FOR REPAVING THE TRENCH OPENING, SEE DETAIL 2 ON SHEET 8 OF 8.
13. ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION.
14. THE CONTRACTOR WILL DISCHARGE THE CHLORINATED FLUSH WATER INTO A SANITARY SEWER. THE MAX. DISCHARGE RATE WILL BE 80 G.P.M. (COST TO BE INCLUDED IN PRICE OF ITEMS BID).
15. ONLY BALTO. CITY PERSONNEL WILL OPERATE EXISTING VALVES OR NEW VALVES AFTER THEY ARE PLACED IN SERVICE. THE CONTRACTOR WILL NOTIFY THE BALTIMORE CITY INSPECTOR TO ARRANGE A SHUTDOWN WITH THE CITY AT LEAST FOUR DAYS PRIOR TO THE PROPOSED SHUTDOWN.
IF THE INSPECTOR IN THE FIELD IS UNAVAILABLE, CALL THE BALTIMORE CITY AREA ENGINEER AT 410-396-7807.
16. THE CONTRACTOR FOR THE MAIN EXTENSION WILL NOTIFY BALTO. CITY BUREAU OF WATER AND WASTEWATER, 396-7807, 72 HOURS BEFORE STARTING WORK.
17. ALL ELEVATIONS BASED UPON BALTIMORE CITY DATUM
18. FOR SERVICE ABANDONMENTS, PLUG SMALL SERVICES 2-INCHES OR LESS AT THE CORPORATION ON THE MAIN. LARGE SERVICES SHALL BE PLUGGED (BC 890 31 32) AT THE TEE, ON THE MAIN, OR THE FITTING MUST BE CUT. CUT OUT METERS SHALL BE RETURNED TO THE METER SHOP AT 200 N. FRANKLINTOWN ROAD.
19. UNLESS OTHERWISE NOTED, THE BIDLINE FOR EXCAVATION WILL BE SUBGRADE UNDER PROPOSED ROADS, ESTABLISHED GRADE UNDER TURF AREAS, AND EXISTING GRADE ALONG EXISTING PAVEMENT.
20. THE CONTRACTOR WILL MAINTAIN, REPAIR AND OR REPLACE ANY EXIST. SEDIMENT CONTROL DEVICES, ENCOUNTERED AND DISTURBED DURING THE COURSE OF CONSTRUCTION UNDER THIS CONTRACT AND AS SHOWN ON THE APPROVED SEDIMENT CONTROL PLAN INCLUDED AS PART OF THE CONTRACT DOCUMENTS. ALL SUCH DISTURBED DEVICES WILL BE REPAIRED OR REPLACED BEFORE LEAVING THE WORK SITE AT THE END OF EACH WORKING DAY. THE COST OF PERFORMING ALL SUCH WORK, INCLUDING MATERIAL, WILL BE PAID FOR BY LUMP SUM BID FOR MAINTENANCE AND REPAIR OF SEDIMENT CONTROL DEVICES.
21. ONE WEEK PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL CONTACT THE PARKING AUTHORITY OF BALTIMORE (PABC) AT 443-573-2801 TO VERIFY THE LOCATIONS OF THE EXISTING PARKING METERS. THE PABC SHALL REMOVE ALL E2 PARK METERS. THE CONTRACTOR SHOULD ALSO NOTIFY THE PABC 72 HOURS PRIOR TO COMPLETION OF THE PROJECT WHEN READY TO REINSTALL THE E2 PARK METERS.

UTILITY NOTES:

- 1. THE CONTRACTOR MUST NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FIVE (5) DAYS PRIOR TO BEGINNING WORK.
2. THE CONTRACTOR MUST NOTIFY WATER AND WASTEWATER MAINTENANCE DIVISION 410-396-7870 AT LEAST TWO (2) WEEKS PRIOR TO STARTUP OF CONSTRUCTION ON WATER SERVICES. FOR SANITARY, CONDUIT, AND STORM WATER SERVICES CONTACT THE PERMIT INSPECTION SECTION AT 410-396-4840. THE CONTRACTOR MUST RECEIVE WRITTEN NOTICE TO PROCEED FROM THE WATER AND WASTEWATER MAINTENANCE DIVISION OR THE PERMIT INSPECTION SECTION PRIOR TO PERFORMING ANY WORK.
3. CONTRACTOR FOR METER INSTALLATION MUST NOTIFY BALTIMORE CITY BUREAU OF WATER AND WASTEWATER 410-396-0170, 72 HOURS BEFORE STARTING WORK.
4. ALL EXISTING WATER VALVES SHALL BE OPERATED BY WATER AND WASTEWATER MAINTENANCE DIVISION FORCES ONLY. NOTIFY MR. AUGIE SEVEREN AT 410-396-0239 AT LEAST SEVEN (7) WORKING DAYS IN ADVANCE OF ANY NECESSARY VALVE OPERATIONS.
5. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE PUBLIC WORKS DEVELOPER'S AGREEMENT, THE LATEST EDITION OF THE CITY OF BALTIMORE, DEPT. OF PUBLIC WORKS, SPECIFICATIONS FOR MATERIALS, HIGHWAYS, BRIDGES, UTILITIES AND STORM DRAINS, DATED 2008 AND AS AMENDED TO DATE, AND BOOK OF STANDARDS FOR STRUCTURES, ROADWAYS AND UTILITIES, AS AMENDED TO DATE.
6. CONTRACTOR SHALL OBSERVE EXTREME CAUTION WHEN WORKING NEAR OR OVER EXISTING WATER FACILITIES.
7. ALL SERVICES MUST BE FLUSHED PRIOR TO SETTING METERS.
8. SERVICES MUST BE CAPPED AND THE COMPLETED SERVICES WILL BE VISUALLY INSPECTED FOR LEAKS.
9. WHENEVER MORE THAN ONE SERVICE IS INSTALLED TO ANY PROPERTY OR BUILDING, THEN CHECK VALVES MUST BE INSTALLED ON ALL SERVICES, BOTH EXISTING AND PROPOSED. THEY MUST BE SHOWN ON THE DRAWING, AND WILL BE VISUALLY VERIFIED BY THE WATER AND WASTEWATER MAINTENANCE DIVISION, PRIOR TO TURNING ON THE NEW SERVICES.
10. ALL SERVICES TO BE ABANDONED MUST BE ABANDONED AT THE MAINS, AND ALL METERS MUST BE RETURNED TO THE CITY.
11. THE DEVELOPER MUST VERIFY THROUGH THE UTILITY BILLING SECTION AT 410-396-5533 THE SERVICE ACCOUNT AND METER NUMBERS FOR ALL EXISTING WATER SERVICES TO REMAIN OR BE ABANDONED AND SHOWN ON THE PROPOSED PLANS.
12. METERS ARE NOT PERMITTED TO BE INSTALLED IN ROADWAYS OR DRIVEWAYS.
13. THE CONTRACTOR SHALL GIVE WRITTEN NOTICES, AS APPROVED BY THE RESIDENT ENGINEER, TO ALL CONSUMERS AFFECTED BY A SHUTDOWN OF THEIR SERVICE(S). A MINIMUM OF (3) DAYS NOTICE PRIOR TO THE ACTUAL WORK IS REQUIRED. WATER SERVICES FOUR (4) INCHES AND LARGER MAY NEED TO BE SCHEDULED AT NIGHT OR DURING WEEKENDS UNLESS THE AFFECTED CONSUMERS AGREE TO THE SCHEDULE AS

PROPOSED BY THE CONTRACTOR.

- 14. THE CONTRACTOR SHALL NOTIFY THE BUREAU OF WATER AND WASTEWATER METER REPAIR SHOP, 410-396-0170, AT LEAST ONE (1) WEEK PRIOR TO PICK UP OF THE METER(S).
15. METERS DESIGNATED FOR A SPECIFIC LOCATION OR ADDRESS SHALL NOT BE RELOCATED WITHOUT WRITTEN PERMISSION FROM THE BUREAU OF WATER AND WASTEWATER.
16. METER TO BE SUPPLIED BY BALTIMORE CITY DEPT. OF PUBLIC WORKS. CALL BALTIMORE CITY AT 410-396-0170 FOR METER PICK-UP, DELIVERY AND INSTALLATION ARE THE RESPONSIBILITY OF THE CONTRACTOR. COST OF METERS WILL BE PAID BY THE OWNER. PICK-UP OF METERS SHALL BE ARRANGED THROUGH THE INSPECTOR.
17. COMPLETED METER INSTALLATION TO BE INSPECTED BY BALTO. CITY BUREAU OF WATER AND WASTEWATER, PRIOR TO TOP SLAB PLACEMENT. CALL 410-396-7755, 48 HOURS PRIOR TO SETTING TOP SLAB.
18. SERVICES LEAD TO BE STRAIGHT AND LEVEL FOR A MINIMUM HORIZONTAL DISTANCE OF 8 TIMES THE PIPE DIAMETER ON THE INLET SIDE OF THE METER WITH A MINIMUM BURY OF 5' 6" AND 6.3' MAXIMUM.
19. THE CONTRACTOR SHALL COORDINATE THE TAPPING OF 10" WATER MAIN IN THAMES STREET WITH BALTIMORE CITY INSPECTION DIVISION.
20. THE CONTRACTOR WILL DISCHARGE THE CHLORINATED FLUSH WATER INTO A SANITARY SEWER. THE MAX. DISCHARGE RATE WILL BE 80 G.P.M. (COST TO BE INCLUDED IN PRICE OF ITEMS BID).
21. ONLY BALTIMORE CITY PERSONNEL WILL OPERATE EXISTING VALVES OR NEW VALVES AFTER THEY ARE PLACED IN SERVICE. THE CONTRACTOR WILL NOTIFY THE BALTIMORE CITY INSPECTOR TO ARRANGE A SHUTDOWN WITH THE CITY AT LEAST FOUR DAYS PRIOR TO THE PROPOSED SHUTDOWN IF REQUIRED. IF THE INSPECTOR IN THE FIELD IS UNAVAILABLE, CALL THE BALTIMORE CITY AREA ENGINEER AT 410-396-7807.
MAIN TO HAVE 4" MIN. COVER BASED ON THE ESTABLISHED GRADE UNLESS OTHERWISE NOTED.
22. THE CONTRACTOR FOR THE MAIN EXTENSION WILL NOTIFY BALTO. CITY BUREAU OF WATER AND WASTEWATER, 410-396-7807, 72 HOURS BEFORE STARTING WORK.
23. RESTRAINED JOINTS WILL BE RETAINER GLANDS, MEGALUGS EBAA IRON SALES SERIES 1100, OR APPROVED EQUAL.
24. THE CONTRACTOR SHALL INSTALL NON-DETECTABLE TAPE ON ALL RESTRAINED JOINT PIPE WHICH SHALL EXTEND 12" ON EACH SIDE OF THE RESTRAINED JOINT PIPE. CONTACT MR. JOHN WATERFORD AT 410-396-1483 FOR DETAILED SPECIFICATIONS OF THE NON-DETECTABLE TAPE FOR RESTRAINED JOINT PIPE.
25. WATER SERVICE ABANDONMENT WITHOUT ABANDONING WATER MAIN.
A. AT WATER MAIN.
BACKFILL, COMPACT BACKFILL, INSTALL PAVING PER DETAIL 2, SHEET 8 OF 8.
B. AT WATER METER VAULT/PIT.
REMOVE FRAME, COVER AND WATER METER FROM THE VAULT/PIT. RETURN TO METER SHOP AND FRAME AND COVER TO WASHINGTON BOULEVARD YARD AND REMOVE AND DISPOSE OF THE REMAINING INSIDE THE VAULT/PIT.
C. BETWEEN WATER MAIN AND WATER METER VAULT/PIT.
BACKFILL COMPACT BACKFILL, INSTALL PAVING PER DETAIL 2, SHEET 8 OF 8.
27. CONTRACTOR SHALL NOTIFY STREET LIGHTING MAINTENANCE AT 410-396-5965 OR 410-396-1686 AT LEAST FOURTEEN (14) DAYS PRIOR TO STARTING WORK.
28. STREET LIGHTING CABLES AND POLES SHALL BE PROTECTED AND SERVICE MAINTAINED AT ALL TIMES. CONTRACTOR SHALL CALL BOE, DEBBIE BARDOFF, 410-291-4900, AT LEAST SEVEN DAYS PRIOR TO ANY EXCAVATION.
29. CONDUIT EXISTS WITHIN THE WORK AREA, CONTRACTOR SHALL USE CAUTION WHEN EXCAVATING AND INSTALLING ANY NEW UTILITY. CONTRACTOR SHALL CALL CONDUIT MAINTENANCE 410-396-1515 PRIOR TO STARTING WORK.
30. BUTTRESSES FOR BENDS SHALL CONFORM TO B.C. 882.01, 886.01, 887.01, AS APPLICABLE.
31. BUTTRESSES FOR CAPS SHALL CONFORM TO B.C. 881.01.
32. BUTTRESSES FOR TEES SHALL CONFORM TO B.C. 880.01.
33. CONTRACTOR SHALL CONFIRM INVERTED ELEVATIONS OF EXISTING WATER MAINS AND ALL UTILITY CROSSINGS PRIOR TO ANY NEW CONSTRUCTION. ANY DEVIATION NOTED FROM TEST PIT INFORMATION WILL REQUIRE RED LINE REVISED PLANS APPROVED BY THE UTILITY ENGINEER SECTION PRIOR TO ANY NEW CONSTRUCTION.
34. THE CONTRACTOR SHALL USE PRESSURE REDUCING VALVES ON ALL SERVICES EXCEEDING 80 PSI.
35. THE BACKFLOW PREVENTER FOR THE PROPOSED WATER SERVICE IS LOCATED INSIDE THE BUILDING.
36. DUCTILE IRON PIPE FITTING SHALL MEET THE LATEST AWWA C110/A21-10 AND C153/A21.51 (PRESSURE RATING SHALL BE 350 PSI)
SANITARY NOTES:
1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE CITY OF BALTIMORE, DEPARTMENT OF PUBLIC WORKS, SPECIFICATIONS FOR MATERIALS, HIGHWAYS, BRIDGES, UTILITIES AND INCIDENTAL STRUCTURES' (STANDARD SPECIFICATION) AND CITY OF BALTIMORE DEPARTMENT OF PUBLIC WORKS STANDARD DETAILS.
2. EXISTING UTILITIES AND OBSTRUCTIONS SHOWN ARE FOR THE CONVENIENCE OF THE CONTRACTOR AND ARE NOT WARRANTED OR GUARANTEED BY THE CITY OR THE ENGINEER TO BE COMPLETE OR CORRECT. THE CONTRACTOR SHALL VERIFY ALL INFORMATION TO HIS OWN SATISFACTION.
3. BEFORE DOING ANY DIGGING, NOTIFY THE FOLLOWING:
- "MISS UTILITY" AT 800-257-7777 (NOTIFY 3 DAYS PRIOR TO WORK).
- DEPT. OF TRANSPORTATION, STREET LIGHTING SECTION AT 410-396-4448 (NOTIFY 2 WEEKS PRIOR TO WORK).
- DEPT. OF TRANSPORTATION, CONDUIT SECTION AT 410-396-1515 (NOTIFY 15 DAYS PRIOR TO WORK).
- VERIZON AT 800-837-4966 (NOTIFY 3 DAYS PRIOR TO WORK).
4. ALL CHANNELS IN MANHOLES MUST BE CONSTRUCTED TO CONFORM AS CLOSE AS POSSIBLE TO THE STANDARD CHANNEL CALLED FOR IN THE PROFILES.
5. GRAVEL CRADLE IS REQUIRED UNDER ALL PIPES. TRENCHING AND BACKFILL SHALL BE DONE IN ACCORDANCE WITH CITY SPECIFICATION SECTION 31 23 33.
6. ALL BACKFILL SHALL BE MECHANICALLY TAMPED.
7. ROADWAY PAVING REPLACEMENT SHALL BE DONE IN ACCORDANCE WITH CITY STANDARD SPECIFICATION SECTION 32 01 30.10 AND DETAIL 2 FOUND ON SHEET 8 OF 8. COBBLESTONES ARE TO BE REMOVED, CLEANED AND REUSED WHEN THE TRENCH IS REPAIRED. WHERE THE TRENCH CROSSES THE EXISTING RAIL TRACKS, EXCAVATE UNDER THE RAILS LEAVING THEM IN PLACE.
8. ALL DIP SHALL BE CLASS 52 AND CONFORM TO ANSIAWWA C151/A21.51. JOINTS FOR DIP PIPE SHALL BE THE PUSH-ON RUBBER GASKET TYPE IN ACCORDANCE WITH ANSI A21/11 (AWWA C111-72).
9. ALL PVC PIPE SHALL CONFORM TO ASTM D3034 SDR 35 FOR PVC COMPOUNDS. JOINTS FOR SDR 35 PVC PIPE SHALL BE THE PUSH-ON RUBBER GASKET TYPE IN ACCORDANCE

WITH ASTM D-3212.

- 10. ONLY SANITARY SEWER WORK TO BE DONE IN THE PUBLIC RIGHT-OF-WAY WILL BE COVERED UNDER THIS AGREEMENT. ALL SANITARY SEWER CONSTRUCTION IN THE PUBLIC RIGHT-OF-WAY SHALL ALSO REQUIRE A PERMIT ISSUED BY THE BALTIMORE CITY DEPARTMENT OF PUBLIC WORKS, WATER AND WASTEWATER ENGINEERING DIVISION, 1ST FLOOR, ABEL WOLMAN MUNICIPAL BUILDING.
11. EXISTING SANITARY SEWER FLOWS AND ALL OTHER UTILITY SERVICES MUST BE MAINTAINED AT ALL TIMES.
12. THE DEPARTMENT OF TRANSPORTATION, TRANSPORTATION MAINTENANCE DIVISION, MAINTAINS STREET LIGHT POLES AND BGE MAINTAINS STREET LIGHT CABLES IN THAMES STREET. THIS LIGHTING SYSTEM MUST BE MAINTAINED AT ALL TIMES. CALL 410-396-5965, IF THESE ITEMS WILL BE DISTURBED.
13. ALL SANITARY FLOWS GO TO BACK RIVER WASTEWATER TREATMENT PLANT.
14. SANITARY HOUSE CONNECTIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 33 31 00 OF THE STANDARD SPECIFICATION AND THE FOLLOWING:
A. ALL NEW SANITARY HOUSE CONNECTIONS SHALL BE CONNECTED TO NEW SANITARY SEWER USING WYE AND 1/8" BEND AS SHOWN ON STANDARD DETAIL BC 830 14.
B. ALL NEW SANITARY HOUSE CONNECTIONS SHALL BE CONNECTED TO EXISTING SEWER AS SHOWN ON STANDARD DETAIL BC 830 17 AND 830 18.
C. CLEANOUTS FOR SANITARY HOUSE CONNECTIONS SHALL BE CONSTRUCTED ON PRIVATE PROPERTY. CLEANOUTS IN THE PUBLIC RIGHT-OF-WAY ARE NOT ALLOWED UNLESS APPROVED BY THE WASTEWATER ENGINEERING OFFICE.
D. EACH PROPERTY MUST HAVE AN INDIVIDUAL HOUSE CONNECTION. TWIN CONNECTIONS ARE NOT ALLOWED.
E. CONTRACTOR IS TO INSTALL HOUSE CONNECTIONS TO PROPERTY LINE.
F. MINIMUM GRADE FOR HOUSE CONNECTION IS 2%.
15. THE FOLLOWING TEST AND SUBMITTALS MUST BE MADE PRIOR TO FINAL ACCEPTANCE OF THE NEW SANITARY SEWER:
A. ALL NEW SANITARY SEWERS AND HOUSE CONNECTIONS SHALL BE TESTED IN ACCORDANCE WITH SECTION 33 31 00 "FIELD TEST" OF THE STANDARD SPECIFICATION.
B. THE CONTRACTOR SHALL VIDEO INSPECT THE NEW SANITARY SEWER IN ACCORDANCE WITH SECTION 33 31 13.01 PART 2 "PRODUCTS" 4 OF THE STANDARD SPECIFICATION AND SUBMIT A DVD/CD OF THE VIDEO INSPECTION TO THE WASTEWATER ENGINEERING OFFICE.
C. PROVIDE AS-BUILT DRAWINGS IN ACCORDANCE TO THE PROCEDURES PROVIDED BY THE WASTEWATER ENGINEERING OFFICE.
D. PROVIDE AS-BUILT LOCATION OF NEW HOUSE CONNECTIONS IN ACCORDANCE TO STANDARD DETAIL BC 830 19.
E. VERIFY PIPE DEFLECTION LIMIT FOR PVC PIPE OF 7.5% USING A GOINO-GO GAGE WITH MANDREL DIMENSION AS SPECIFIED IN ASTM D3034.

TRAFFIC NOTES:

- THE CONTRACTOR MUST CONTACT MR. ROBERT E. FERGUSON, OF THE OFFICE OF TRANSPORTATION AT 443-984-2153 TWO WEEKS BEFORE CONSTRUCTION BEGINS AND ONE WEEK PRIOR TO ANY CHANGES TO THE CONTRACTOR'S MAINTENANCE OF TRAFFIC (M.O.T.) PLAN.
1. ALL EXCAVATIONS AND TRENCHES SHALL BE PLATED AT THE END OF EACH WORKDAY AND "STEEL PLATES AHEAD" WARNING SIGNS DISPLAYED IN ADVANCE. ALL STEEL PLATES THAT ARE INSTALLED AS PER BC-576.17 MUST BE CLEARLY MARKED SO THAT OWNERSHIP IS EASILY DISCERNIBLE.
2. THE CONTRACTOR SHALL MAINTAIN A MINIMUM FOUR-FOOT (4') WIDE PEDESTRIAN FOOTWAY OR IMPLEMENT AN APPROPRIATE PEDESTRIAN DETOUR WHILE ACTIVELY WORKING IN THE SIDEWALK IN ACCORDANCE WITH ADA GUIDELINES AND APPROPRIATE SHA AND CITY STANDARDS.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SUPPLY, INSTALL, AND MAINTAIN ALL TRAFFIC CONTROL EQUIPMENT FOR THE DURATION OF THIS CONTRACT.
4. ALL TRAFFIC CONTROL MUST BE IN ACCORDANCE WITH THE CURRENT REVISIONS OF THE FEDERAL HIGHWAY M.U.T.C.D. AND THE MARYLAND S.H.A. WORK ZONE TRAFFIC CONTROL STANDARDS AND THE CITY OF BALTIMORE BOOK OF STANDARDS.
5. TO WORK IN THE PUBLIC RIGHT-OF-WAY, THE CONTRACTOR MUST OBTAIN PERMITS FROM THE DEPARTMENT OF PUBLIC WORKS PERMITS DIVISION. APPLICATIONS ARE ACCEPTED AT THE DEPARTMENT OF PUBLIC WORKS PERMIT DIVISION IN THE ABEL WOLMAN MUNICIPAL BUILDING, ROOM #7, 200 N. HOLLIDAY STREET, PHONE 410-396-4508 DURING THE PERMIT REVIEW. THE CONTRACTOR MAY BE BILLED ADDITIONAL TRAFFIC INSPECTIONS FEES UNRELATED TO ANY PREVIOUS COSTS.
6. NO WORK OR DISRUPTION OF TRAFFIC BETWEEN THE HOURS OF 8AM - 9AM AND 3PM - 6PM.
7. THE CONTRACTOR SHALL MAINTAIN A MINIMUM OF ONE (1) ELEVEN FOOT (11') LANE OF TRAFFIC ON WOLFE STREET AND TWO (2) TEN FOOT (10') TRAFFIC ON MADISON STREET AT ALL TIMES.
8. THE CONTRACTOR SHALL MAINTAIN ONE (1) ELEVEN FOOT (11') OF TRAFFIC IN EACH DIRECTION ON ASHLAND AVENUE AT ALL TIMES OR PROVIDE A TWO PERSON FLAGGING OPERATION IN ACCORDANCE WITH APPLICABLE STANDARDS. NO ROADWAY CLOSURE WILL BE PERMITTED.
9. THE CONTRACTOR IS RESPONSIBLE FOR ANY SIGNING AND PAVEMENT MARKINGS DAMAGED OR DESTROYED DURING CONSTRUCTION, INCLUDING THOSE OUTSIDE THE PROJECT LIMITS.
10. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY TEMPORARY NO STOPPING PROHIBITION SIGNING THAT WILL BE NECESSARY TO COMPLETE THIS PROJECT.
11. THE CONTRACTOR SHALL PROTECT ALL TRAFFIC SIGNAL EQUIPMENT, CONDUIT, AND CABLES DURING THE CONSTRUCTION PHASE OF THE PROJECT. IF ANY DAMAGE OCCURS TO THESE EQUIPMENTS DURING CONSTRUCTION, THE CONTRACTOR SHALL REPAIR THE DAMAGE AT THE CONTRACTORS OWN EXPENSE AND HE SHALL NOT BILL THE CITY FOR ANY REPAIRS.

Architect



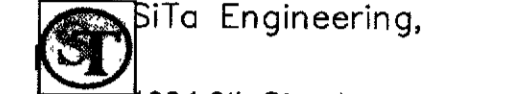
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Civil / Structural



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Owner / Client

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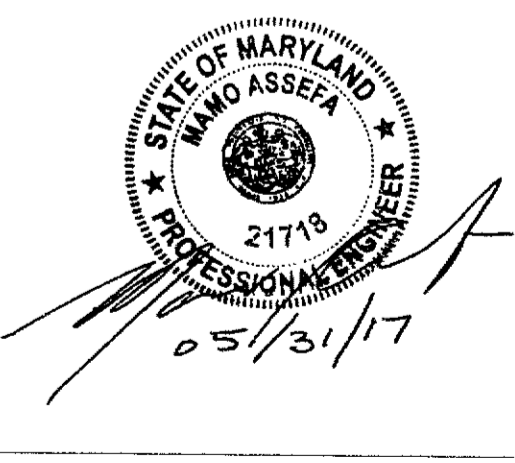
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Table with 3 columns: No., Description, Date. Contains revision history entries.

Table with 3 columns: REV, DESCRIPTION, DATE. Contains revision history entries.

REVISION HISTORY



Date: 02/5/2016
Project # 1501.01

STANDARD NOTES

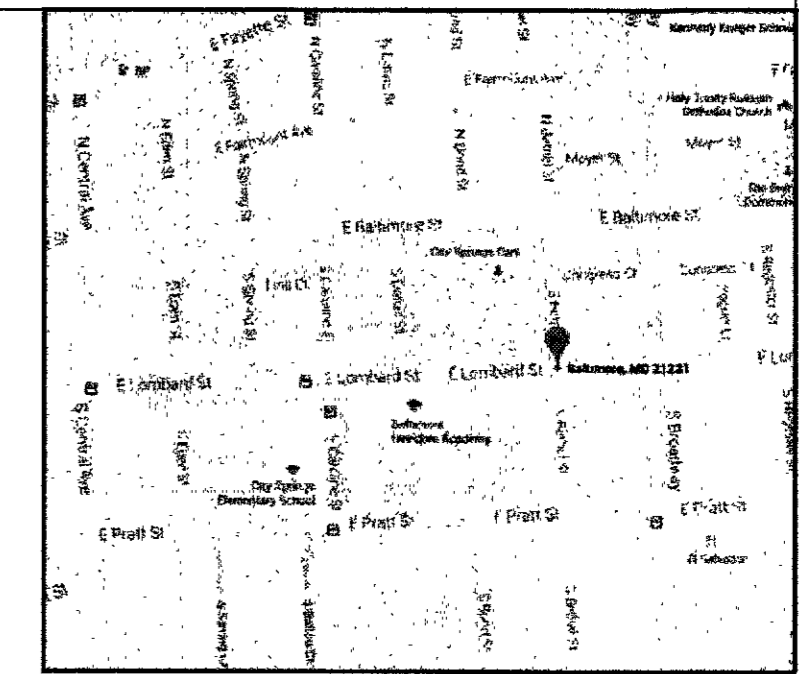
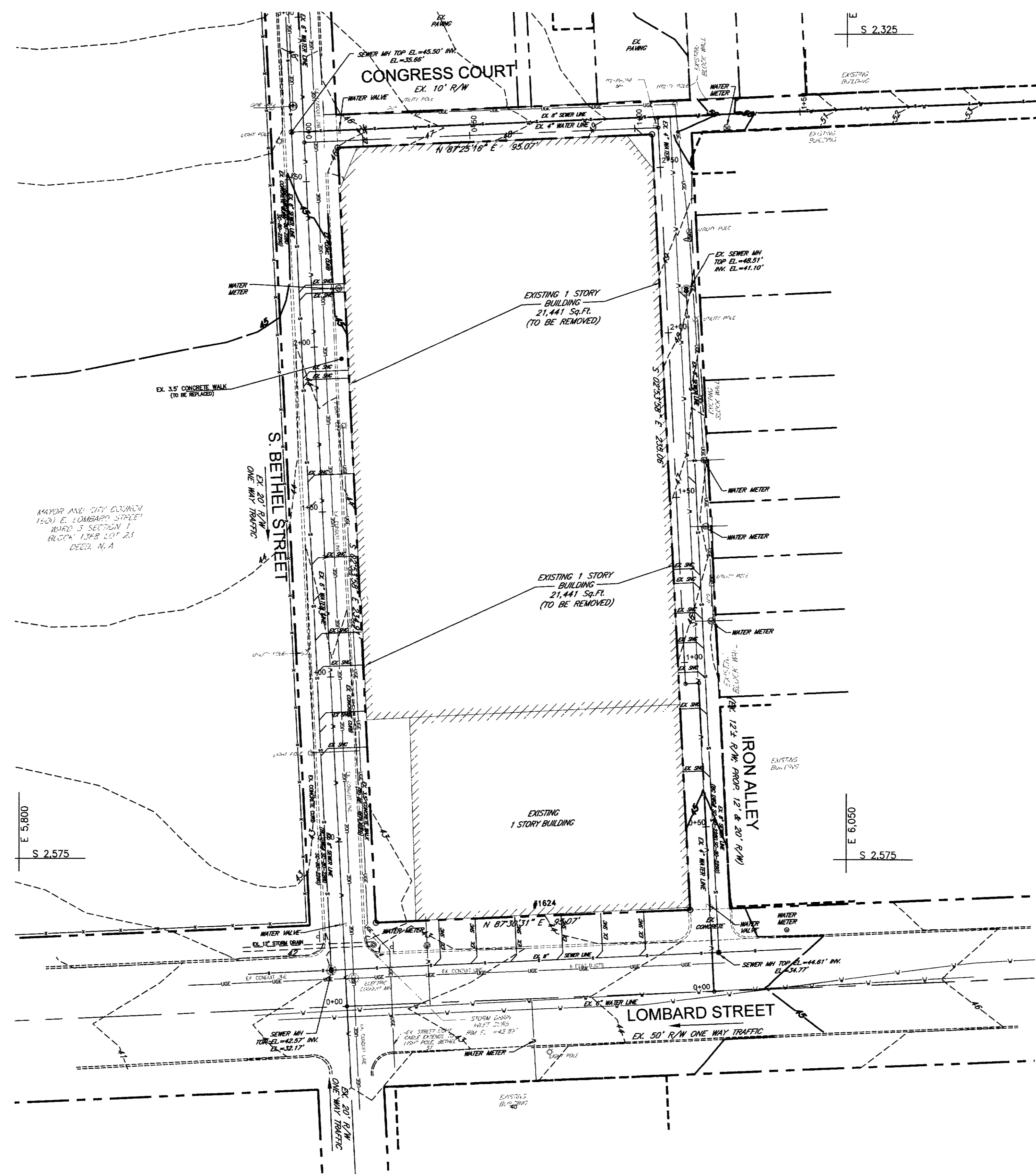
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Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 21718, Expiration Date: 2017-09-16

ESD # 7121

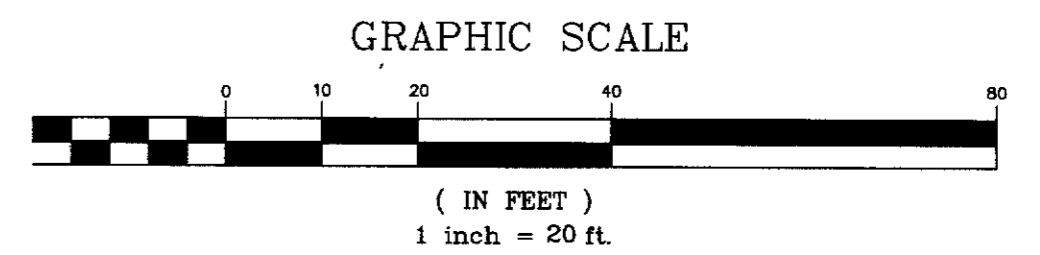
1 2 3 4 5 6

A  
B  
C  
D  
E



EXISTING CONDITION PLAN LEGEND

- EX. SEWER MANHOLE
- EX. WATER MANHOLE
- EX. WATER METER
- EX. STORM DRAIN MANHOLE
- EX. TELEPHONE MANHOLE
- EX. ELECTRICAL MANHOLE
- EX. GAS MANHOLE
- EX. FIRE HYDRANT
- EX. SIGN
- EX. LIGHT POLE
- EX. GAS VALVE
- EX. YARD GRATE-INLET
- EX. WATER VALVE
- EX. WATER METER
- EX. TREE
- EX. TRAVERSE
- PROPERTY LINE
- 84 EXISTING CONTOUR
- W EX. WATER LINE
- G EX. GAS LINE
- S EX. STORM DRAIN LINE
- UGT EX. UNDERGROUND TELEPHONE LINE
- UGE EX. UNDERGROUND ELECTRIC LINE
- E EX. OVERHEAD ELECTRIC LINE
- X EX. FENCE



**ESD # 7121**

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922 S. Bethel Street  
Baltimore, MD 21212

REV	DESCRIPTION	DATE
4	SWM-ES	05/20/2017
3	SWM-ES	09/29/2016
2	SWM-ES	08/15/2016
1	BID-SET	02/5/2016

REVISION HISTORY



Date: 02/5/2016  
Project # 1501.01

EXISTING CONDITION

C-1.0

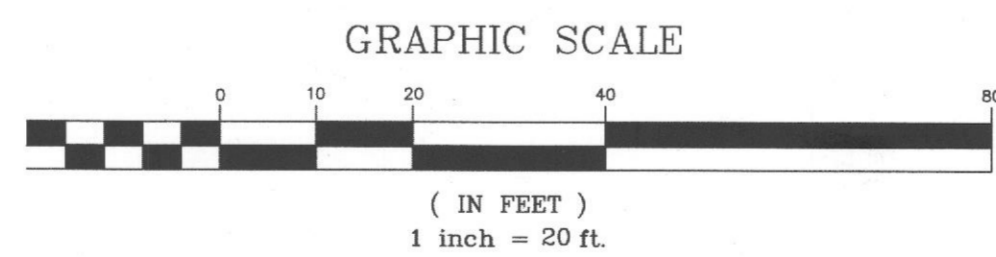
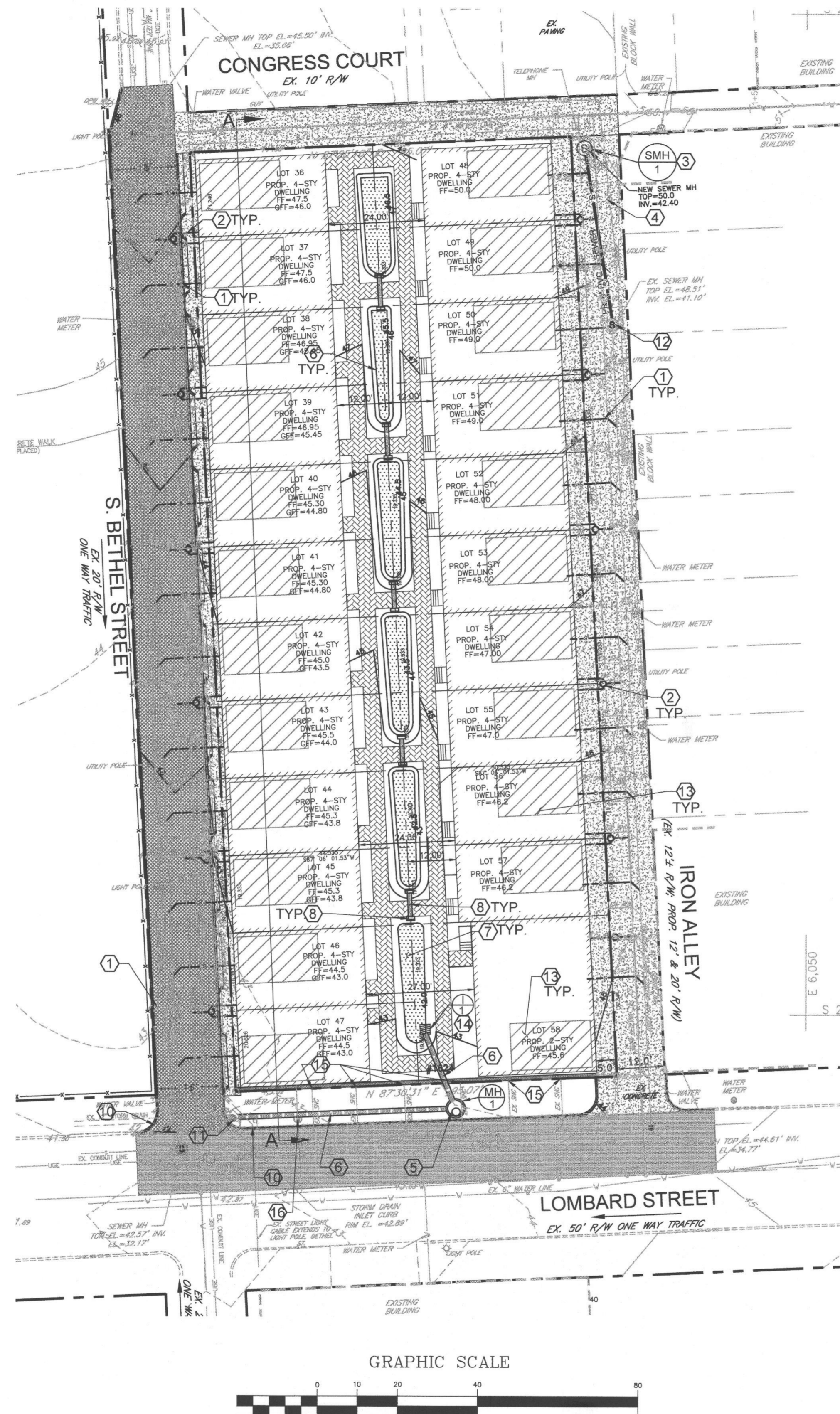


**EXISTING CONDITION PLAN LEGEND**

- ⊙ EX. SEWER MANHOLE
- ⊙ EX. WATER MANHOLE
- ⊙ EX. WATER METER
- ⊙ EX. STORM DRAIN MANHOLE
- ⊙ EX. TELEPHONE MANHOLE
- ⊙ EX. ELECTRICAL MANHOLE
- ⊙ EX. GAS MANHOLE
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- ⊙ EX. GAS VALVE
- ⊙ EX. YARD GRATE-INLET
- ⊙ EX. WATER VALVE
- ⊙ EX. WATER METER
- ⊙ EX. TREE
- ⊙ EX. TRAVERSE
- 84 — PROPERTY LINE
- — EXISTING CONTOUR
- W — EX. WATER LINE
- G — EX. GAS LINE
- — EX. STORM DRAIN LINE
- S — EX. SEWER LINE
- UGT — EX. UNDERGROUND TELEPHONE LINE
- UGE — EX. UNDERGROUND ELECTRIC LINE
- E — EX. OVERHEAD ELECTRIC LINE
- X — EX. FENCE

**GRADING CONSTRUCTION NOTES**

- ALL GRADED OR DISTURBED AREAS INCLUDING SLOPES SHALL BE PROTECTED DURING CLEARING AND CONSTRUCTION IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN UNTIL THEY ARE ADEQUATELY STABILIZED.
- ALL EROSION AND SEDIMENT CONTROL PRACTICES AND MEASURES SHALL BE CONSTRUCTED APPLIED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED SEDIMENT CONTROL PLAN AND THE "STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL".
- TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED IN AMOUNT NECESSARY TO COMPLETE FINISHED GRADING OF ALL EXPOSED AREAS.
- AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL.
- AREAS WHICH ARE TO BE TOP SOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF THREE INCHES PRIOR TO PLACEMENT OF TOPSOIL.
- ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEM. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC., SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
- ALL FILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 8 INCHES IN THICKNESS.
- EXCEPT FOR APPROVED LANDFILLS OR NONSTRUCTURAL FILLS, FILL MATERIAL SHALL BE FREE OF BRUSH, RUBBISH, ROCKS, LOGS, STUMPS, BUILDING DEBRIS AND OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
- FROZEN MATERIAL OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILL SLOPES OR STRUCTURAL FILLS.
- FILL SHALL NOT BE PLACED ON A FROZEN FOUNDATION.
- ALL BENCHES SHALL BE KEPT FREE OF SEDIMENT DURING ALL PHASES OF DEVELOPMENT.
- SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHODS.
- ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISHED GRADING.
- STOCKPILES, BORROW AREAS, AND SPOIL AREAS SHALL BE SHOWN ON THE PLANS AND SHALL BE SUBJECT TO THE PROVISIONS OF THIS STANDARD AND SPECIFICATIONS.



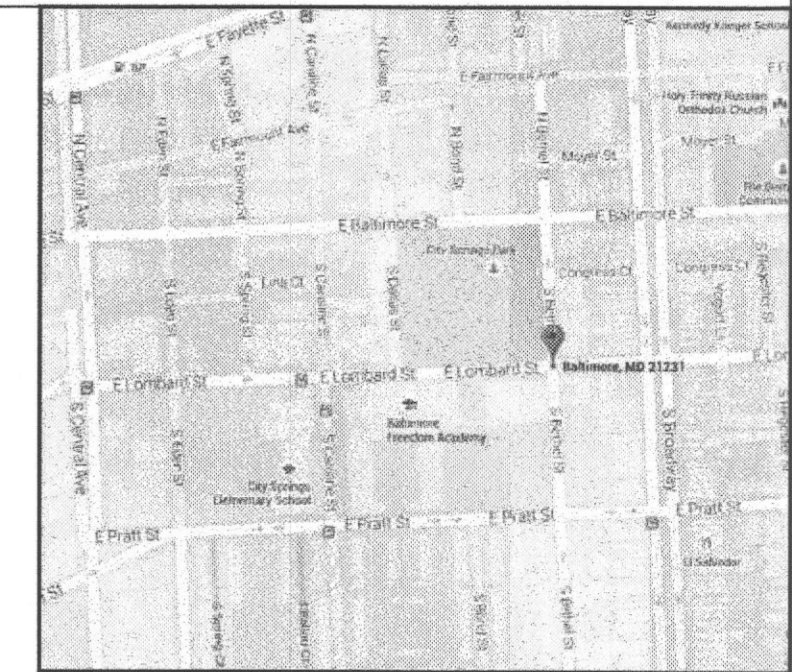
**SITE DATA:**

- OWNER: HERENA USA  
210 E. LEXINGTON STREET  
BALTIMORE, MD. 21212
- CONSULTANT: M.A DESIGN GROUP LLC  
1705 CHESTER MILL ROAD  
SILVER SPRING, MD. 20906
- TOTAL SITE AREA: 22,340 SF (0.513 Ac)  
REDEVELOPED AREA: 22,340 SF (0.513 Ac)
- EXISTING USE : WARE HOUSE BUILDING (ABANDONED)
- EXISTING ZONED: R-8  
PROPOSED ZONE: R-8
- BUILDING AREA:  
EXISTING: 21,441 SF (0.492 Ac)  
PROPOSED: 14,925 SF (0.34 Ac)
- IMPERVIOUS AREA:  
EXISTING: 22,340 SF(0.51 Ac)  
PROPOSED: 18,704 SF (0.43 Ac)
- PROPOSED BUILDING HEIGHT:  
THE SITE IS NOT WITHIN THE CHESAPEAKE BAY CRITICAL AREA

**SITE PLAN LEGEND**

- W — NEW WATER LINE
- S — NEW SEWER LINE
- 84 — PROPOSED GROUND CONTOUR.
- INSTALL NEW CONCRETE PAVEMENT AND BASE MATERIAL.
- INSTALL NEW BRICK SIDEWALK.
- INSTALL NEW MICRO BIORETENTION PLANTING.
- INSTALL NEW CONCRETE PAVEMENT

- INSTALL NEW 4 INCH PVC SANITARY SEWER PER BALTIMORE CITY STANDARD BC 830.14
- INSTALL NEW TWIN WATER SERVICE PER BALTIMORE CITY STANDARD BC 838.01
- INSTALL NEW SANITARY SEWER MANHOLES PER BALTIMORE CITY STANDARD BC 831.04
- INSTALL NEW 8 INCH SDR 35 PVC PIPE
- INSTALL NEW STORMDRAIN MANHOLE PER BALTIMORE CITY STANDARD BC 831.04
- INSTALL NEW 15 INCH RCP STORMDRAIN PIPE
- INSTALL NEW MICRO BIORETENTION FACILITY
- INSTALL NEW 8 INCH HDPE STORM DRAIN
- INSTALL NEW STANDARD BC 354.02 HEADWALL
- INSTALL NEW STANDARD CONCRETE CURB
- CONNECT NEW 15" RCP TO EXISTING INLET
- CONNECT NEW 4 INCH AND 8 INCH SANITARY TO EXISTING MANHOLE
- PARKING GARAGE 11.75' X 20'
- INSTALL NEW YARD INLET
- CAP AND ABANDON EXISTING SEWER HOUSE CONNECTIONS (SHC)
- REMOVE METER DEMOLISH METER VAULT AND CAP AND ABANDON WATER LINE



VICINITY MAP

Architect



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fitmellis@fitadcc@gmail.com

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1	BID-SET	02/5/2016
REV	DESCRIPTION	DATE



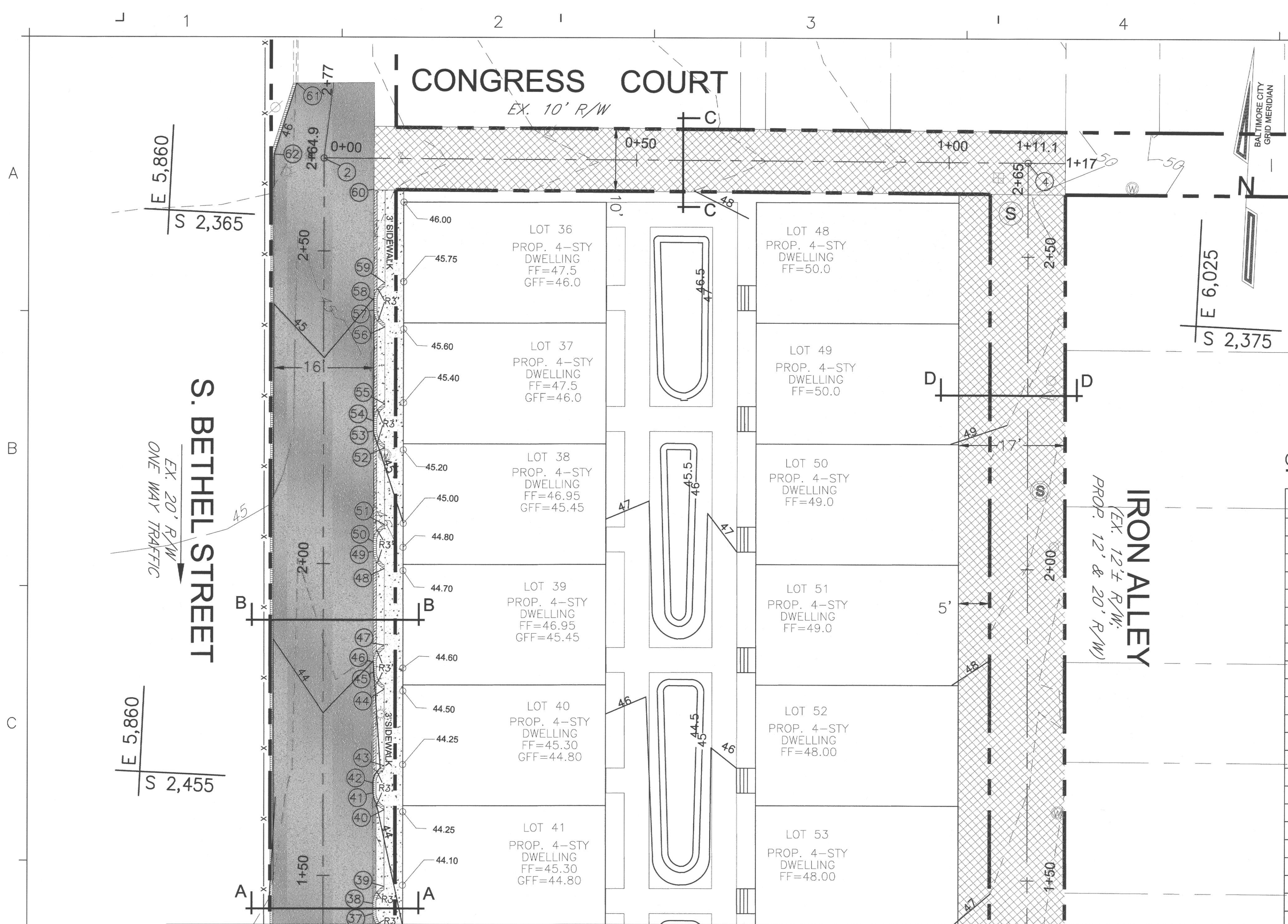
Date: 02/5/2016  
Project # 1501.01

DEVELOPMENT  
PLAN

C-2.0

**ESD # 7121**

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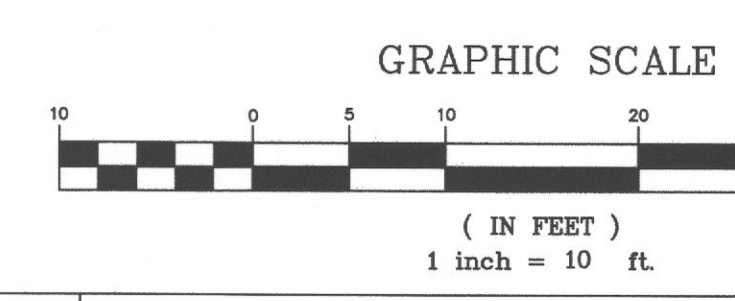
**SITE LEGEND**

- NEW FULL DEPTH ASPHALT PAVEMENT AND BASE. SEE DETAIL ON SHEET DA C-9.
- RECONSTRUCT EXISTING CONCRETE ALLEY. SSEE DETAIL ON SHEET DA C-9.
- NEW 3.0' CONCRETE SIDEWALK. SEE DETAIL ON SHEET DA C-9.
- NEW 6" CONCRETE CURB AND GUTTER. SEE DETAIL ON SHEET DA C-9.
- NEW DEPRESSED CONCRETE CURB. SEE DETAIL ON SHEET DA C-9.

**COORDINATE TABLE:**

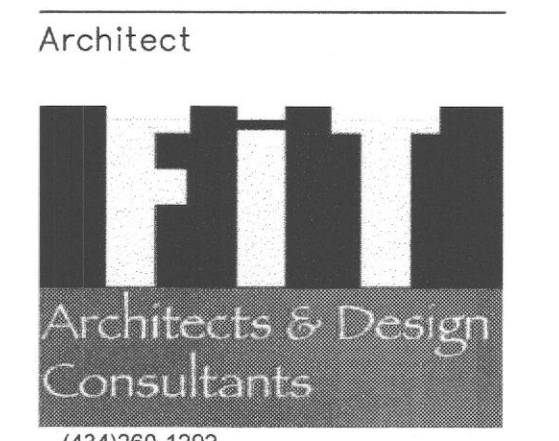
POINT #	DESCRIPTION	NORTHING	EASTING	ELEVATION.
2	S. BETHEL ST, STA 2+64.9	2355.42	5884.31	45.60 PAVEMENT
4	CONGRESS CT, STA 1+11.1	2350.35	5996.78	49.95 PAVEMENT
37	PT, GARAGE ENTRANCE LOT 41	2475.84	5898.43	43.96 TC
38	PC, GARAGE ENTRANCE LOT 41	2471.44	5899.96	43.96 TC
39	PT, GARAGE ENTRANCE LOT 41	2471.44	5899.96	43.98 TC
40	PC, GARAGE ENTRANCE LOT 40	2459.16	5899.34	44.02 TC
41	PT, GARAGE ENTRANCE LOT 40	2456.53	5897.46	44.05 TC
42	PC, GARAGE ENTRANCE LOT 40	2454.95	5897.37	44.07 TC
43	PT, GARAGE ENTRANCE LOT 40	2452.14	5898.98	44.10 TC
44	PC, GARAGE ENTRANCE LOT 40	2439.85	5898.36	44.20 TC
45	PT, GARAGE ENTRANCE LOT 40	2437.22	5896.48	44.30 TC
46	PC, GARAGE ENTRANCE LOT 39	2435.64	5896.40	44.50 TC
47	PT, GARAGE ENTRANCE LOT 39	2432.83	5898.00	44.60 TC
48	PC, GARAGE ENTRANCE LOT 39	2420.54	5897.38	44.65 TC
49	PT, GARAGE ENTRANCE LOT 39	2417.91	5895.50	44.70 TC
50	PC, GARAGE ENTRANCE LOT 38	2416.33	5895.42	44.80 TC
51	PT, GARAGE ENTRANCE LOT 38	2413.52	5897.03	44.95 TC
52	PC, GARAGE ENTRANCE LOT 38	2401.23	5896.40	45.15 TC
53	PT, GARAGE ENTRANCE LOT 38	2398.61	5894.52	45.25 TC
54	PC, GARAGE ENTRANCE LOT 37	2397.02	5894.44	45.30 TC
55	PT, GARAGE ENTRANCE LOT 37	2394.21	5896.05	45.35 TC
56	PC, GARAGE ENTRANCE LOT 37	2381.93	5895.43	45.55 TC
57	PT, GARAGE ENTRANCE LOT 37	2379.30	5893.54	45.45 TC
58	PC, GARAGE ENTRANCE LOT 36	2377.72	5893.46	45.50 TC
59	PT, GARAGE ENTRANCE LOT 36	2374.90	5895.07	45.70 TC
60	CORNER, GARAGE ENTRANCE LOT 36	2360.13	5892.57	45.80 TC
61	CORNER, S. BETHEL ST, STA 2+76.9	2343.68	5879.31	45.85 TC
62	CORNER, S. BETHEL ST, STA 2+64.9	2355.25	5876.30	45.90 TC

MATCH LINE SHEET DA C-8B  
**PAVING PLAN - 1**  
 SCALE: 1"=10'



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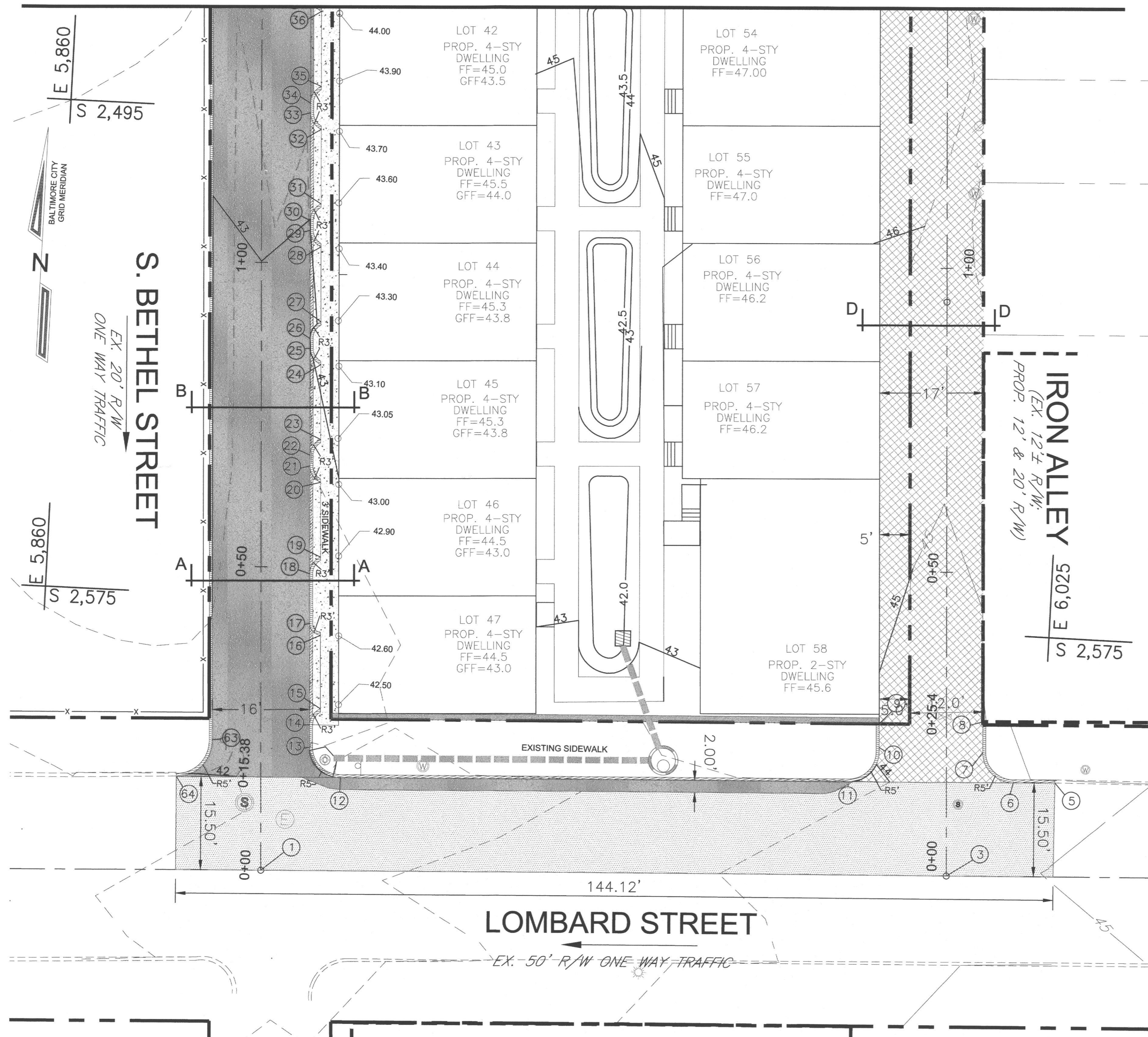
Date: 02/5/2016  
 Project # 1501.01

**SITE PAVING PLAN - 1**

C-2.10

NOTE: DO NOT SCALE DRAWINGS. CONTRACTORS SHALL VERIFY ALL DIMENSIONS BEFORE INSTALLATION.

MATCH LINE SHEET DA C-8A



**SITE LEGEND**

- NEW FULL DEPTH ASPHALT PAVEMENT AND BASE. SEE DETAIL ON SHEET DA C-9.
- RECONSTRUCT EXISTING CONCRETE ALLEY. SEE DETAIL ON SHEET DA C-9.
- NEW 3.0' CONCRETE SIDEWALK. SEE DETAIL ON SHEET DA C-9.
- NEW 6" CONCRETE CURB AND GUTTER. SEE DETAIL ON SHEET DA C-9.
- NEW DEPRESSED CONCRETE CURB. SEE DETAIL ON SHEET DA C-9.

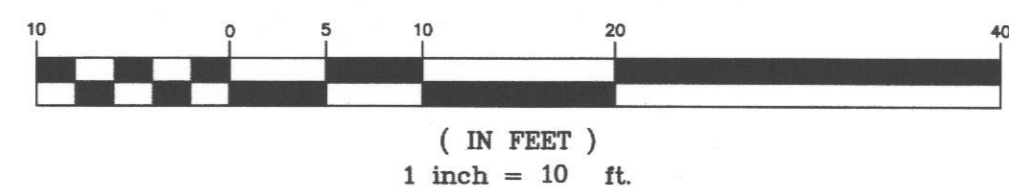
**COORDINATE TABLE:**

POINT #	DESCRIPTION	NORTHING	EASTING	ELEVATION.
1	S. BETHEL ST, STA 0+00	2619.97	5897.71	42.48 PAVEMENT
3	IRON ALLEY, STA 0+00	2615.08	6010.19	44.70 PAVEMENT
5	CURB START, LOMBARD ST	2598.81	6027.22	44.95 TC
6	PC	2599.14	6020.41	44.90 TC
7	PT	2594.41	6015.16	44.86 TC
8	CURB END, IRON ALLEY SAT 0+25.4	2589.32	6015.03	44.99 TC
9	CURB START, IRON ALLEY SAT 0+25.4	2590.59	5997.95	44.80 TC
10	PC	2594.49	5998.14	44.65 TC
11	PT	2600.44	5993.41	44.40 TC
12	PC	2604.04	5909.89	43.00 TC
13	PT	2599.29	5904.69	43.00 TC
14	PC, GARAGE ENTRANCE LOT 47	2595.61	5904.50	42.80 TC
15	PT, GARAGE ENTRANCE LOT 47	2592.87	5906.11	42.45 TC
16	PC, GARAGE ENTRANCE LOT 47	2580.85	5905.50	42.55 TC
17	PT, GARAGE ENTRANCE LOT 47	2578.96	5903.66	42.65 TC
18	PC, GARAGE ENTRANCE LOT 46	2570.80	5903.24	42.75 TC
19	PT, GARAGE ENTRANCE LOT 46	2567.98	5904.85	42.85 TC
20	PC, GARAGE ENTRANCE LOT 46	2555.70	5904.23	42.90 TC
21	PT, GARAGE ENTRANCE LOT 46	2553.07	5902.35	42.92 TC
22	PC, GARAGE ENTRANCE LOT 45	2551.49	5902.26	42.94 TC
23	PT, GARAGE ENTRANCE LOT 45	2548.68	5903.87	42.96 TC
24	PC, GARAGE ENTRANCE LOT 45	2536.40	5903.25	43.05 TC
25	PT, GARAGE ENTRANCE LOT 45	2533.77	5901.37	43.08 TC
26	PC, GARAGE ENTRANCE LOT 44	2532.18	5901.29	43.10 TC
27	PT, GARAGE ENTRANCE LOT 44	2529.37	5902.89	43.15 TC
28	PC, GARAGE ENTRANCE LOT 44	2517.09	5902.27	43.20 TC
29	PT, GARAGE ENTRANCE LOT 44	2514.46	5900.39	43.35 TC
30	PC, GARAGE ENTRANCE LOT 43	2512.88	5900.31	43.50 TC
31	PT, GARAGE ENTRANCE LOT 43	2510.06	5901.92	43.55 TC
32	PC, GARAGE ENTRANCE LOT 43	2497.78	5901.29	43.65 TC
33	PT, GARAGE ENTRANCE LOT 43	2495.15	5899.41	43.75 TC
34	PC, GARAGE ENTRANCE LOT 42	2493.57	5899.33	43.80 TC
35	PT, GARAGE ENTRANCE LOT 42	2490.75	5900.94	43.85 TC
36	PC, GARAGE ENTRANCE LOT 42	2478.47	5900.32	43.95 TC
63	PC	2598.91	5888.65	42.55 TC
64	PT	2605.21	5883.06	42.50 TC

**PAVING PLAN - 2**

SCALE: 1"=10'

GRAPHIC SCALE



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Architect



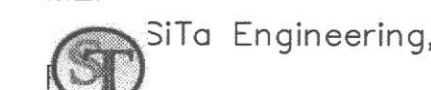
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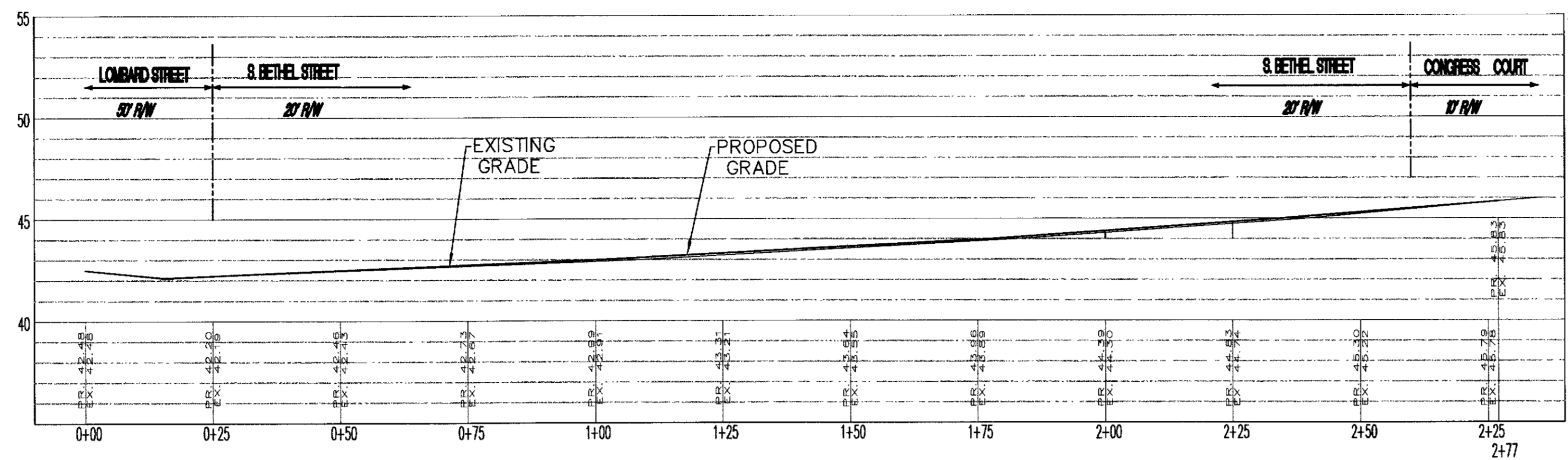
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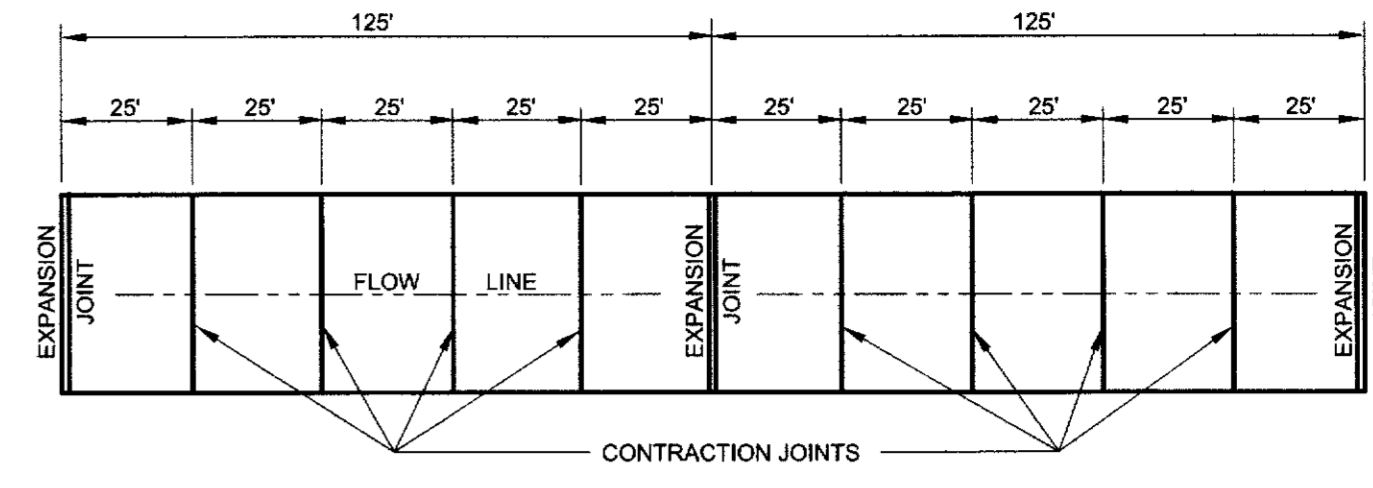
**SITE PAVING PLAN-2**

E

C-2.11

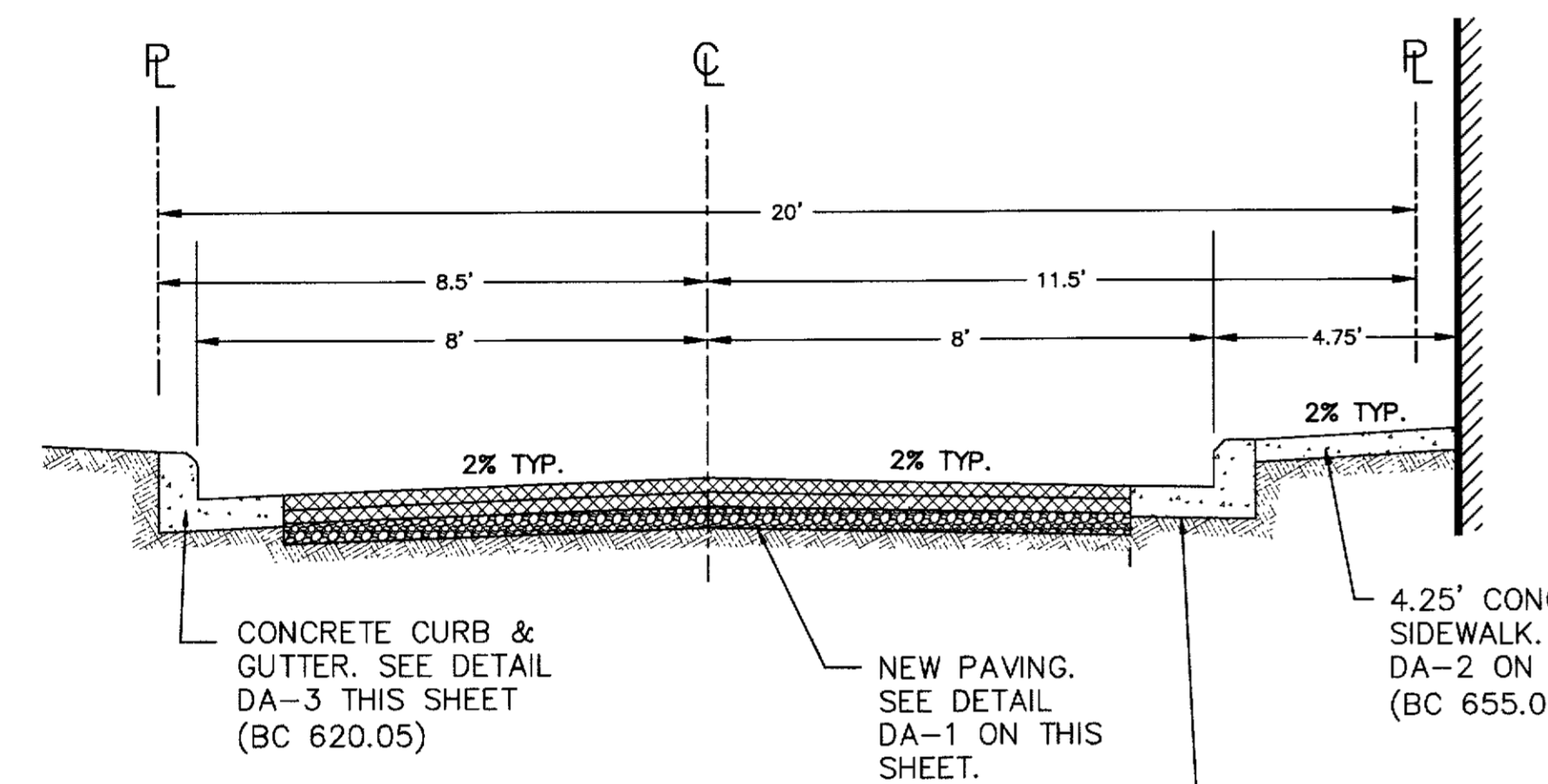


**S. BETHEL STREET PROFILE**  
 SCALE: VERT: 1"= 5'  
 HORIZ: 1"=20'

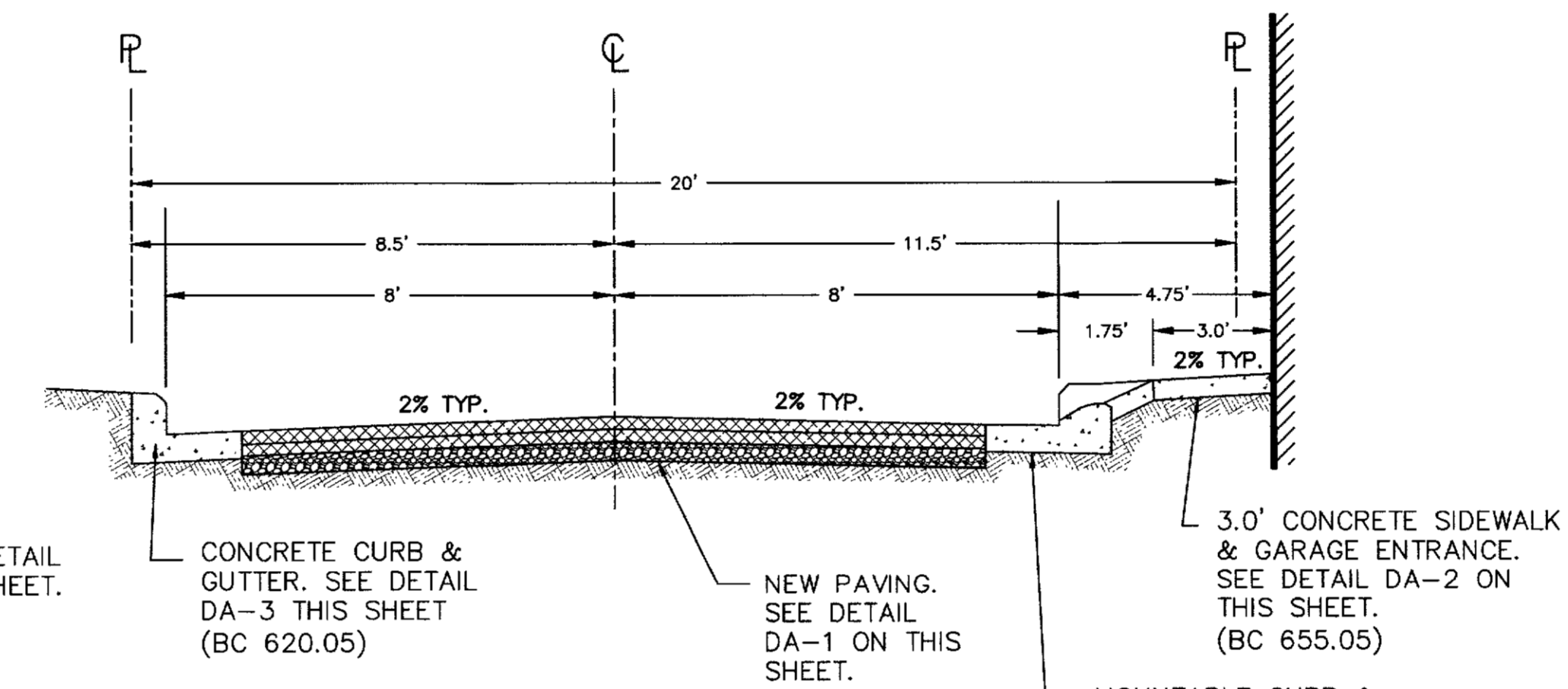


**PLAN**  
 MAXIMUM SPACING SHOWN

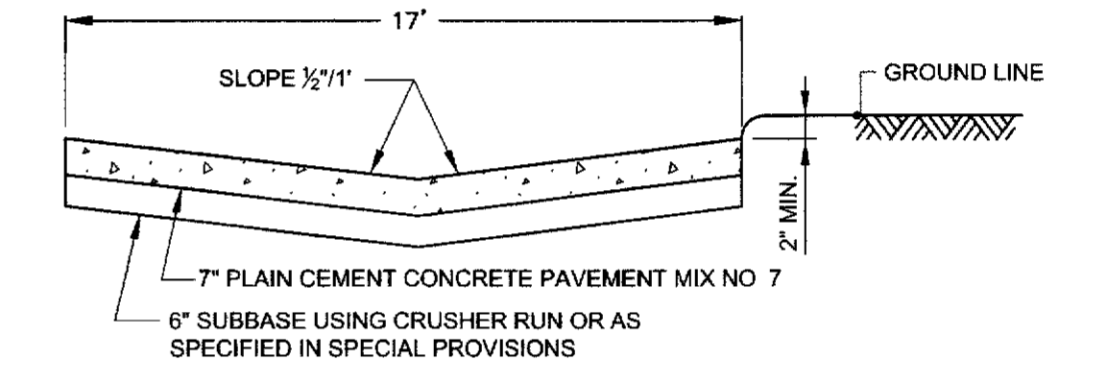
- GENERAL NOTES**
- WORK TO BE DONE IN ACCORDANCE WITH SECTION 32 13 13.33 OF THE STANDARD SPECIFICATIONS DATED 2006.
  - PLACE AN EXPANSION JOINT AT INTERVALS SHOWN AND AT ALL ANGLES IN ALLEYS.
  - NO LONGITUDINAL CONSTRUCTION JOINTS WILL BE PERMITTED.
  - PLACE 1/2" PERFORMED EXPANSION MATERIAL AT ALL ABUTTING CONCRETE.
  - AN EDGING TOOL WITH A ONE - QUARTER (1/4) INCH RADIUS SHALL BE USED TO FINISH THE CONCRETE NEXT TO EXPANSION AND CONTRACTION JOINTS, UNLESS CONTRACTION JOINT ARE SAWED.
  - EXPANSION AND CONTRACTION JOINTS SHALL BE IN ACCORDANCE WITH STD. PLATE BC 572 21 AND BC 572 92-1, EXCEPT AS FOLLOWS: EXPANSION JOINTS - USE 3/4" DIA. DOWEL BAR CONTRACTION JOINTS - DOWEL BARS NOT REQUIRED.



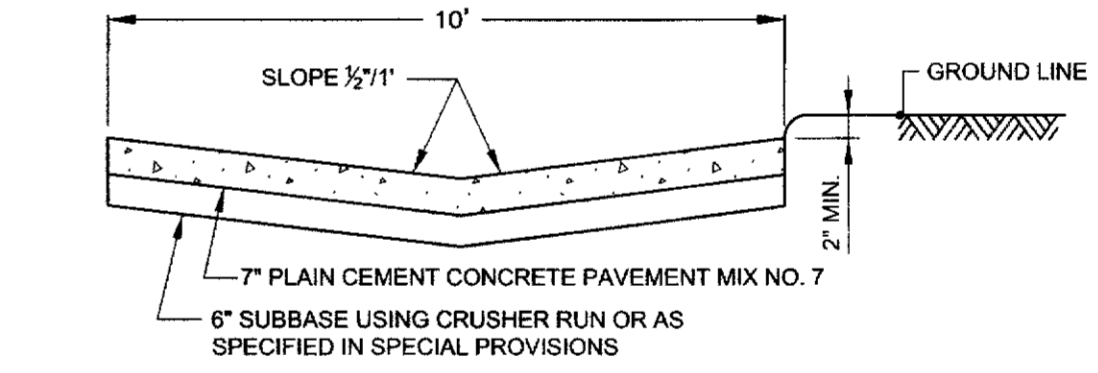
**SECTION A-A**  
 SCALE: NTS



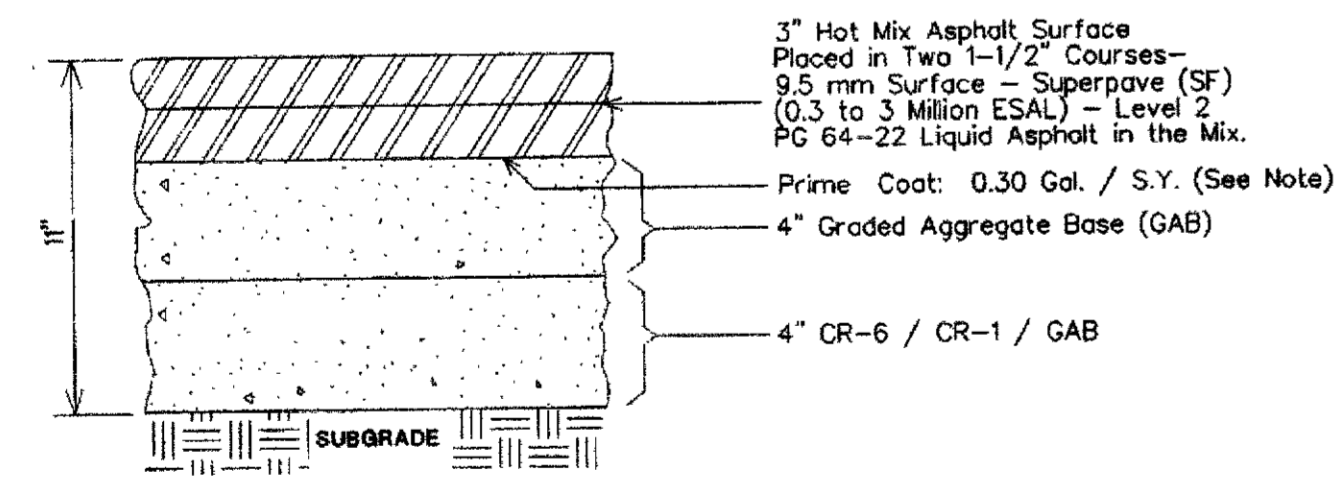
**SECTION B-B**  
 SCALE: NTS



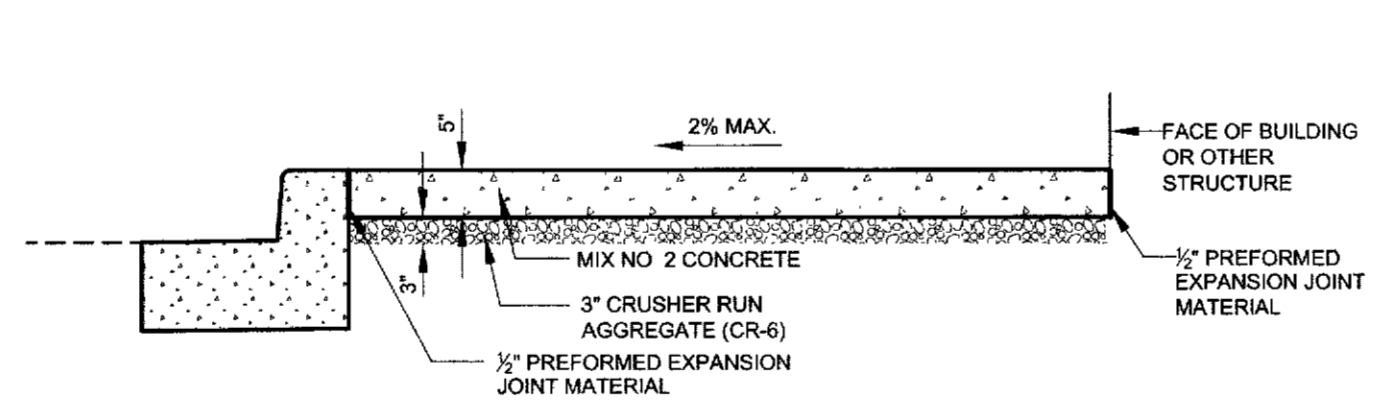
**CONCRETE ALLEY DETAIL SECTION C-C**  
 SCALE: NTS



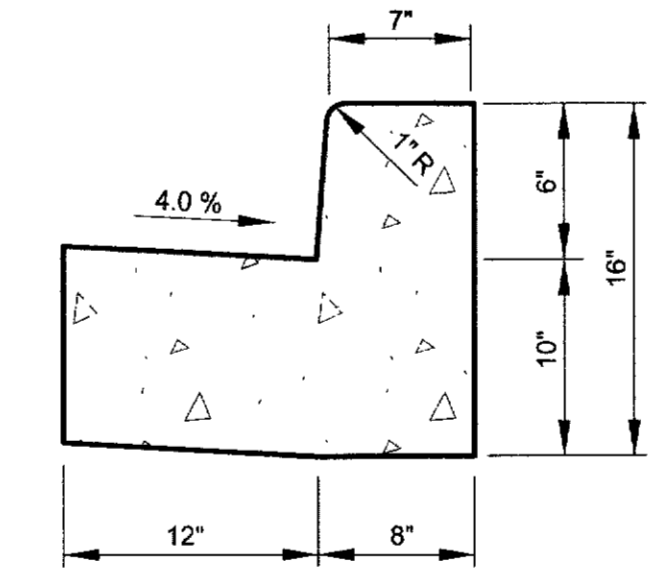
**CONCRETE ALLEY DETAIL SECTION D-D**  
 SCALE: NTS



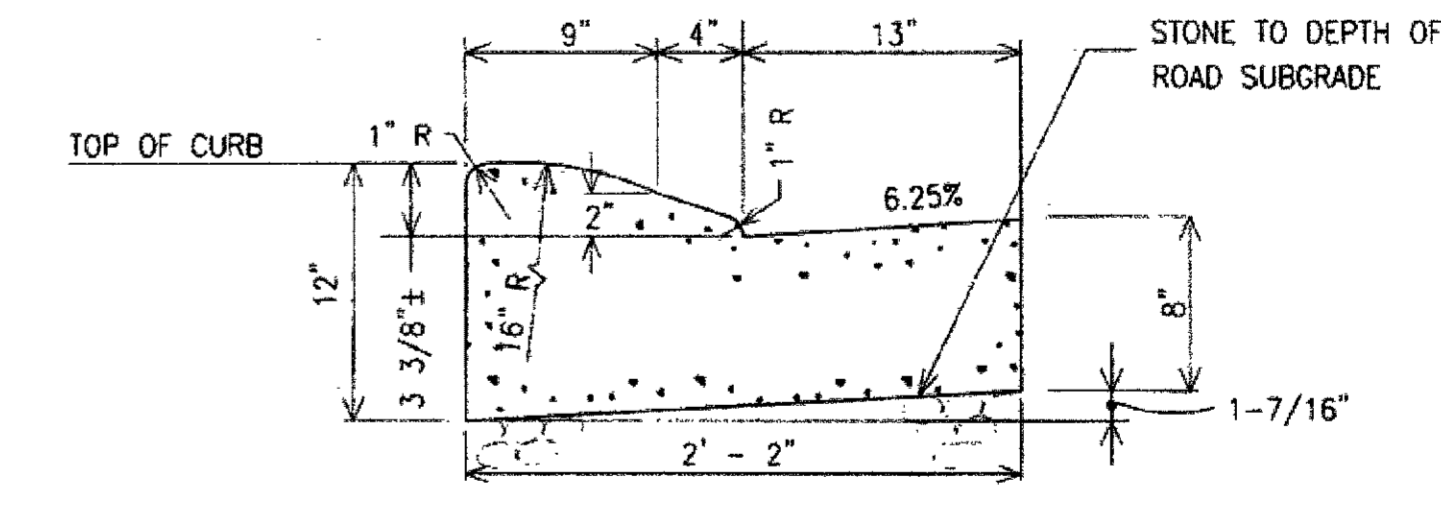
**ASPHALT PAVEMENT DETAIL DA-2**  
 SCALE: NTS



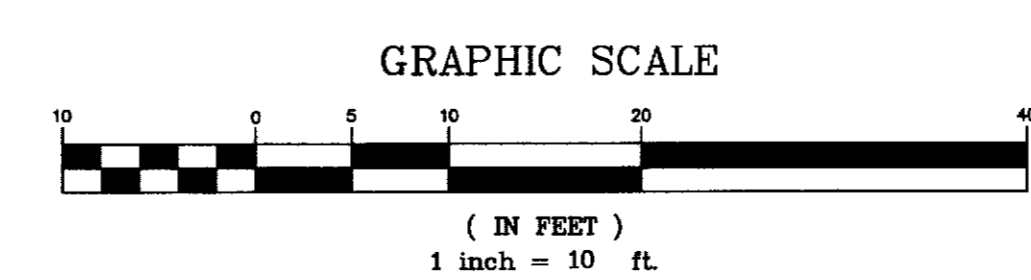
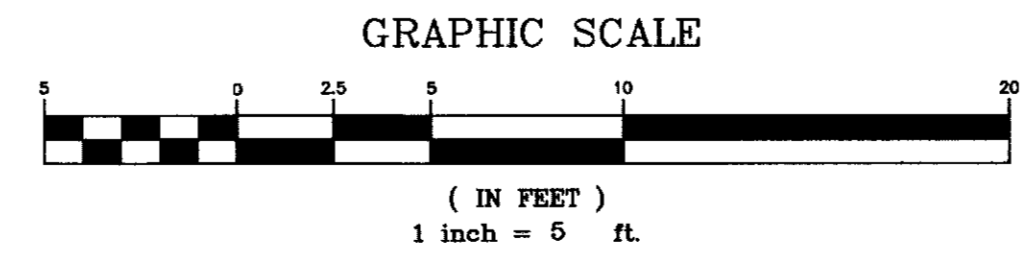
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 SCALE: NTS



**CONCRETE CURB DETAIL DA-3**  
 SCALE: NTS

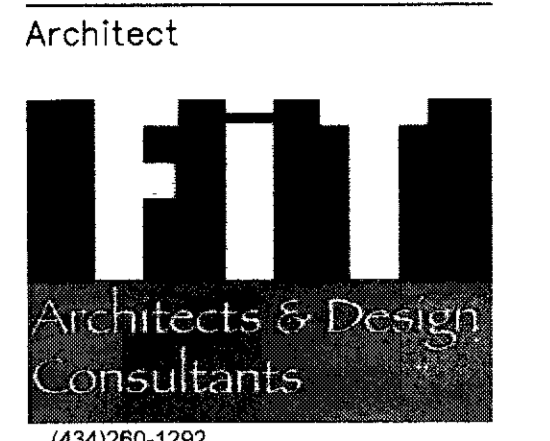


**MOUNTABLE CURB DETAIL DA-4**  
 SCALE: NTS



**ESD # 7121**

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
 License No. 21718, Expiration Date: 2017-09-16



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 Baltimore, Maryland 21202

Herena USA  
 E. Lombard Street  
 1622-1634 Lombard Street  
 922 S. Bethel Street  
 Baltimore, MD 21212

REV	DESCRIPTION	DATE
4	SWM-ES	05/20/2017
3	SWM-ES	09/29/2016
2	SWM-ES	08/15/2016
1	BID-SET	02/5/2016

REVISION HISTORY



Date: 02/5/2016  
 Project # 1501.01

**SITE PAVING PROFILE & DETAILS**

C-2.115



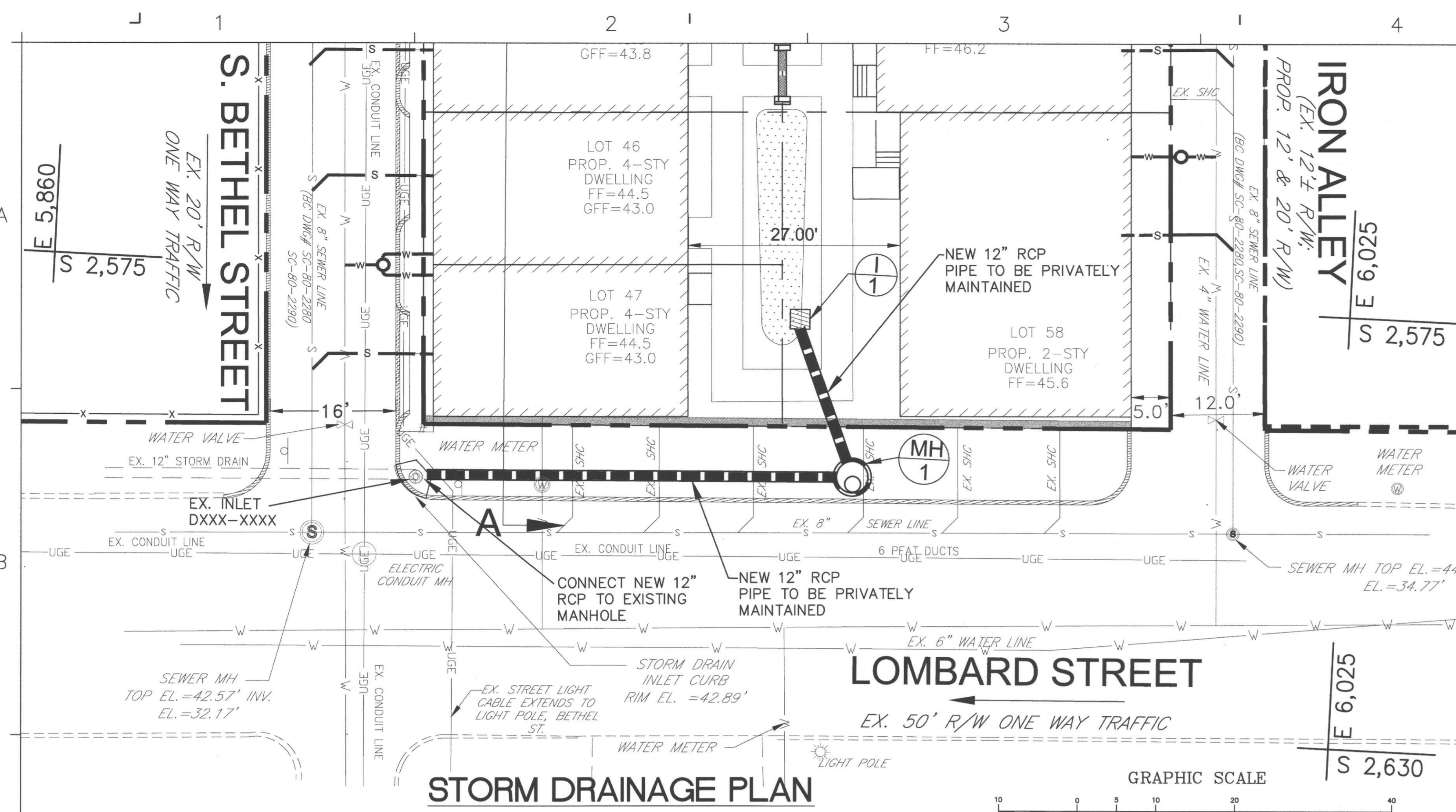
Architect  
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 fhemelisso.ftitadc@gmail.com

Civil / Structural  
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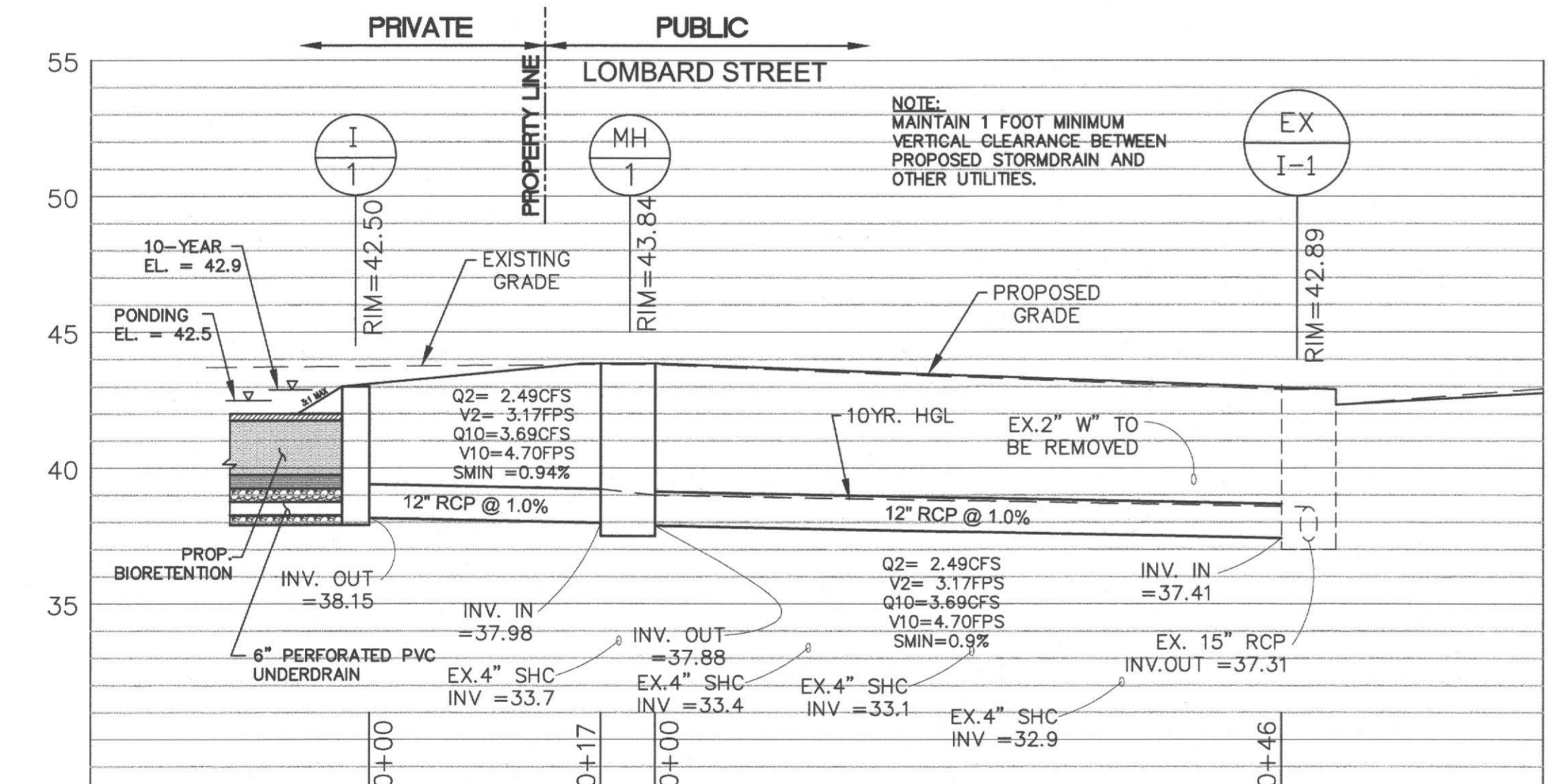
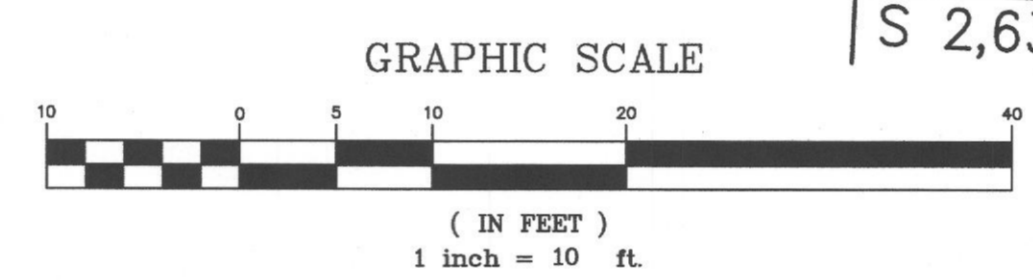
Herena USA  
 E. Lombard Street  
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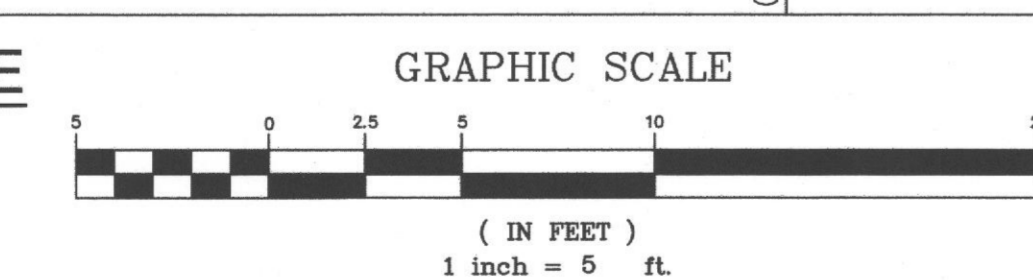
**EXISTING CONDITION PLAN LEGEND**

- ⊙ EX. SEWER MANHOLE
- ⊙ EX. WATER MANHOLE
- ⊙ EX. WATER METER
- ⊙ EX. STORM DRAIN MANHOLE
- ⊙ EX. TELEPHONE MANHOLE
- ⊙ EX. ELECTRICAL MANHOLE
- ⊙ EX. GAS MANHOLE
- FH EX. FIRE HYDRANT
- ⊙ EX. SIGN
- ⊙ EX. LIGHT POLE
- ⊙ EX. GAS VALVE
- ⊙ EX. YARD GRATE-INLET
- ⊙ EX. WATER VALVE
- ⊙ EX. WATER METER
- ⊙ EX. TREE
- △ EX. TRAVERSE
- — — — — PROPERTY LINE
- 84 — — — — — EXISTING CONTOUR
- W — — — — — EX. WATER LINE
- G — — — — — EX. GAS LINE
- — — — — EX. STORM DRAIN LINE
- S — — — — — EX. SEWER LINE
- UGT — — — — — EX. UNDERGROUND TELEPHONE LINE
- UGE — — — — — EX. UNDERGROUND ELECTRIC LINE
- E — — — — — EX. OVERHEAD ELECTRIC LINE
- X — — — — — EX. FENCE

**STORM DRAINAGE PLAN**  
 SCALE: 1"=10'



**STORM DRAINAGE PROFILE**  
 SCALE: VERT: 1"= 5'  
 HORIZ: 1"=10'



**STORM DRAIN GENERAL NOTES:**

- ALL WORK WITHIN THE CITY RIGHT OF WAY SHALL BE ACCOMPLISHED IN ACCORDANCE WITH "SPECIFICATIONS" AND "BOOK OF STANDARDS" FOR THE CITY OF BALTIMORE, DEPARTMENT OF PUBLIC WORKS.
- OBSTRUCTIONS SHOWN ON THIS DRAWING ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY AND THE CITY OR WHITNEY, BAILEY, COX & MAGNANI DOES NOT WARRANT OR GUARANTEE THE CORRECTNESS OR COMPLETENESS OF THE INFORMATION GIVEN. THE CONTRACTOR MUST VERIFY ALL SUCH INFORMATION TO HIS OWN SATISFACTION.
- BEFORE DOING ANY DIGGING, NOTIFY THE FOLLOWING: "MISS UTILITY" 1-800-257-7777 BUREAU OF TRANSPORTATION, STREET LIGHTING MAINT. SECTION, BILL COLBERT 410-396-5965 BUREAU OF TRANSPORTATION, CONDUIT MAINT. SECTION, JEFF HARTMAN, 410-396-1515.
- TYPE OF JOINT FOR PIPE

TYPE PIPE	TYPE JOINTS
SDR 35 PVC PIPE: DRAIN	PVC COUPLER
SDR 35 PVC: INLET CONNECTION	PVC COUPLER

- ALL CHANNELS IN MANHOLES AND INLETS MUST BE CONSTRUCTED TO CONFORM, AS CLOSE AS POSSIBLE, TO THE STANDARD CHANNELS CALLED FOR ON THE PROFILES. A GRAVEL CRADLE IS REQUIRED UNDER ALL PIPING EXCEPT INLET CONNECTIONS. ALL BACKFILL SHALL BE MECHANICALLY TAMPED. SEE THE BALTIMORE CITY BOOK OF STANDARDS FOR STANDARD DETAILS.
- TEMPORARY STEEL PLATES WILL BE PLACED AT EXCAVATIONS AT THE END OF EACH WORKING DAY. SEE B.C. STD. 579.17.
- ROADWAY, CURBS, AND/OR SIDEWALKS SHALL BE REPAIRED "IN KIND" WHERE DISTURBED BY WATER LINE CONSTRUCTION. SIDEWALKS SHALL BE REPAIRED AS SHOWN IN DETAIL 7 ON SHEET 8 OF 8. CURBS SHALL BE REPLACED TO NEAREST EXISTING JOINT AS SHOWN IN DETAIL 3 OF SHEET 8 OF 8 TO THE NEAREST JOINT.
- ALL TRENCH REPAIRS TO RESTORE HISTORIC PAVING IN ACCORDANCE WITH DETAIL 2, FOUND ON PAGE 8 OF 8.
- CONTRACTOR SHALL ATTACH A COPY OF THE EXECUTED AGREEMENT TO THE APPLICATION FOR A STREET-CUT PERMIT.

**GENERAL NOTES**

- FOR TRENCH REPAIR REFER TO B.C.576.19-1 AND B.C.576.19-2 OR 576.20-1 AND B.C.576.20-2 AS APPLICABLE.
- ANY CURB DISTURBED BY THIS INSTALLATION SHALL BE REPLACED IN-KIND TO THE NEAREST EXISTING JOINT.
- SIDEWALKS DISTURBED BY CONSTRUCTION SHALL BE REPLACED TO THE NEAREST JOINT USING 5" OF MIX NO. 2 CONCRETE ON 3" OF CR-6.
- THE CONTRACTOR IS TO MAINTAIN AND PROTECT ALL LIGHTING SYSTEMS DURING CONSTRUCTION.
- ALL WORK SHALL BE IN ACCORDANCE WITH CITY OF BALTIMORE DEPARTMENT OF PUBLIC WORKS SPECIFICATIONS FOR MATERIAL, BRIDGES, UTILITIES AND INCIDENTAL STRUCTURES (1979) AND ADDENDUM THERETO.
- OBSTRUCTIONS SHOWN ON THIS DRAWING ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE CITY DOES NOT WARRANT OR GUARANTEE THE CORRECTNESS OR THE COMPLETENESS OF THE INFORMATION GIVEN. THE CONTRACTOR MUST VERIFY ALL SUCH INFORMATION TO THEIR OWN SATISFACTION.
- ANY DAMAGE OR DEMOLITION OF EXISTING FEATURES IN OR ADJACENT TO THE LIMIT OF DISTURBANCE AND NOT PART OF THE WORK SUCH AS BUT NOT LIMITED TO SIDEWALKS AND CURB AND GUTTERS SHALL BE REPAIRED AND REPLACED BY THE CONTRACTOR IN ACCORDANCE WITH BALTIMORE CITY STANDARDS.
- IF SIDEWALK CLOSURE IS NECESSARY DURING CONSTRUCTION ENSURE AN ALTERNATIVE PEDESTRIAN ACCESS THAT IS ADEQUATELY SIGNED.

**UTILITY NOTES:**

- THE CONTRACTOR MUST NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FIVE (5) DAYS PRIOR TO BEGINNING WORK.
- THE CONTRACTOR MUST NOTIFY WATER AND WASTEWATER MAINTENANCE DIVISION (396-7870) AT LEAST TWO (2) WEEKS PRIOR TO START-UP OF CONSTRUCTION ON WATER SERVICES. FOR SANITARY, CONDUIT, AND STORM WATER SERVICES CONTACT THE PERMIT INSPECTION SECTION AT 410-396-4840. THE CONTRACTOR MUST RECEIVE WRITTEN NOTICE TO PROCEED FROM THE WATER AND WASTEWATER MAINTENANCE DIVISION OR THE PERMIT INSPECTION SECTION PRIOR TO PERFORMING ANY WORK.
- SERVICES MUST BE CAPPED AND THE COMPLETED SERVICES WILL BE VISUALLY INSPECTED FOR LEAKS.
- ALL SERVICES TO BE ABANDONED MUST BE ABANDONED AT THE MAINS, AND ALL METERS MUST BE RETURNED TO THE CITY.

STR. NO.	SCHEDULE	INVERT	STANDARD
MH-1	48" DIAMETER PRECAST MH	TOP EL. 43.840 INV. IN 37.98 INV. OUT 37.88	BC 383.02
I-1	TYPE S INLET AND COVER	TOP EL. 42.50 INV. OUT 38.15	BC 377.11

**TABLE OF COORDINATES**

STRUCTURE NUMBER	TYPE	COORDINATES		APPLICATION POINT
		S	E	
MH-1	48" MANHOLE	2598.54	5962.81	CENT. OF MH
I-1	TYPE S INLET	2978.86	5955.18	CENT. OF IN

**ESD # 7121**

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3	SWM-ES	09/29/2016
2	SWM-ES	08/15/2016
1	BID-SET	02/5/2016

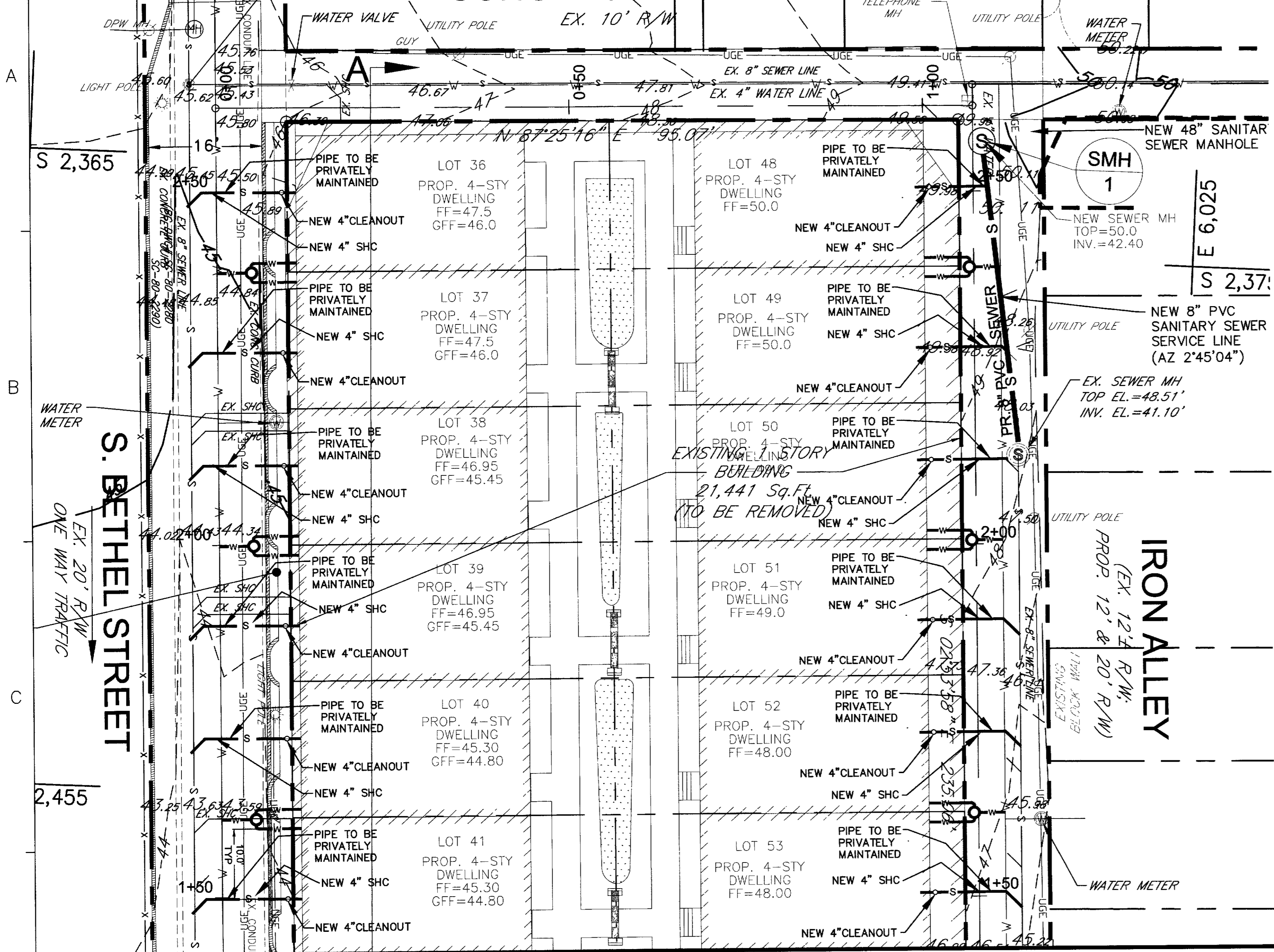
REVISION HISTORY



Date: 02/5/2016  
 Project # 1501.01  
**STORM DRAIN PLAN NOTES & PROFILE**

C-2.12

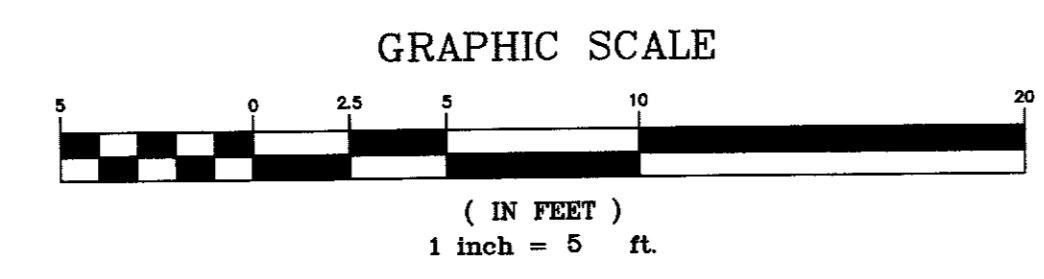
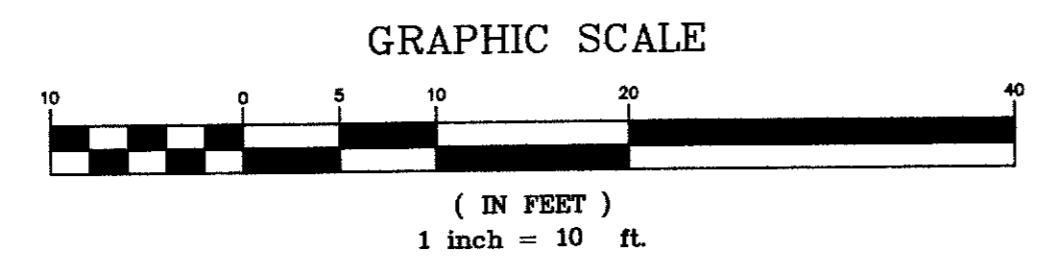
# CONGRESS COURT



MATCH LINE SHEET C 2.12

## SEWER SERVICE PLAN - 1

SCALE: 1"=10'



### EXISTING CONDITION PLAN LEGEND

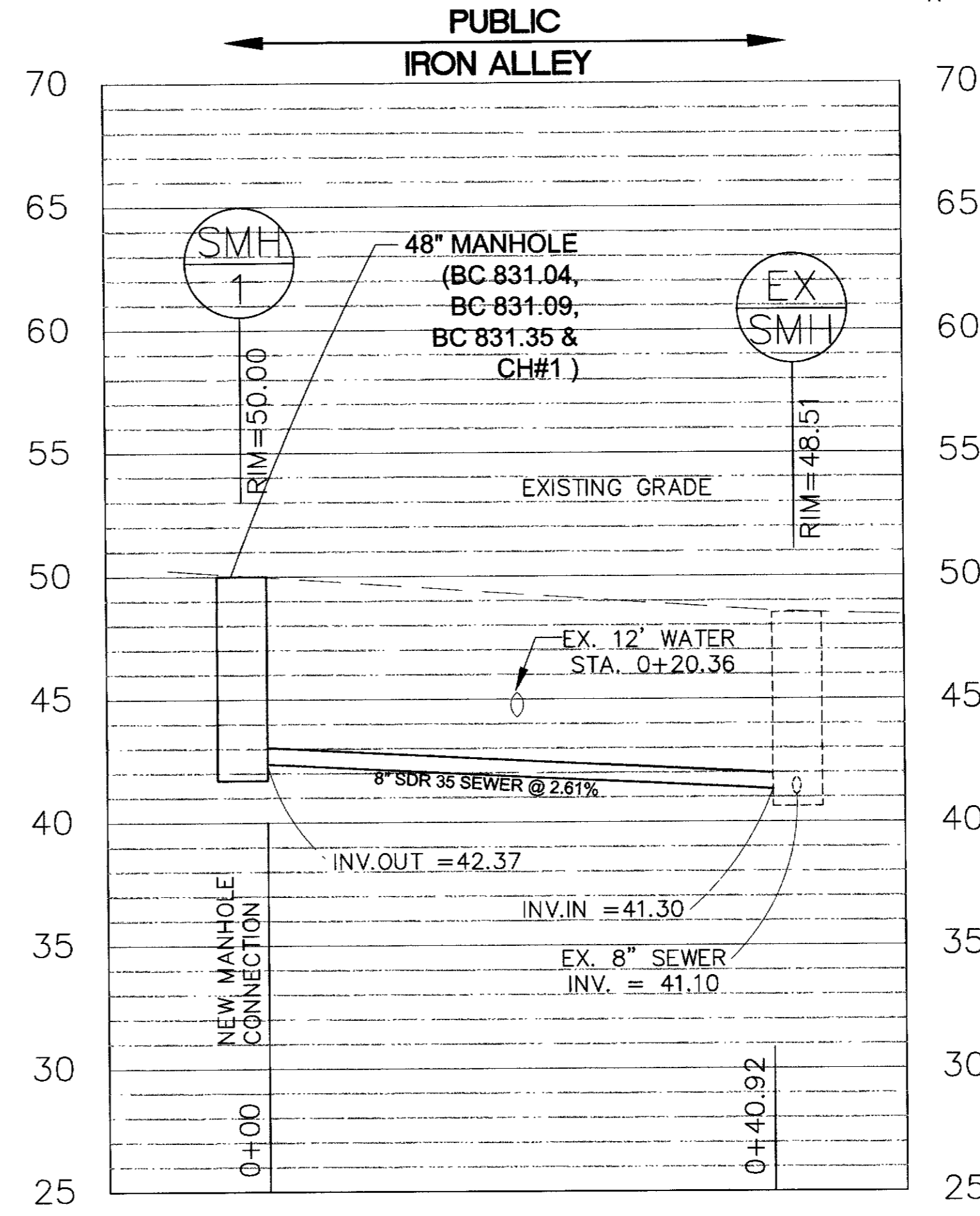
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- ⊙ EX. WATER MANHOLE
- ⊙ EX. WATER METER
- ⊙ EX. STORM DRAIN MANHOLE
- ⊙ EX. TELEPHONE MANHOLE
- ⊙ EX. ELECTRICAL MANHOLE
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- ⊙ EX. WATER VALVE
- ⊙ EX. WATER METER
- ⊙ EX. TREE
- ⊙ EX. TRAVERSE
- — — — — PROPERTY LINE
- 84 — — — — EXISTING CONTOUR
- W — — — — EX. WATER LINE
- G — — — — EX. GAS LINE
- — — — — EX. STORM DRAIN LINE
- S — — — — EX. SEWER LINE
- UGT — — — — EX. UNDERGROUND TELEPHONE LINE
- UGE — — — — EX. UNDERGROUND ELECTRIC LINE
- E — — — — EX. OVERHEAD ELECTRIC LINE
- X — — — — EX. FENCE

MH NO.	SCHEDULE	INVERT	STANDARD
SMH-1	48" DIAMETER PRECAST MH	INV. OUT 42.2	BC 831.04 (MH)
SMH-1	24" FRAME AND COVER	TOP EL. 50.0	BC 831.40 (COVER) BC 831.41 (FRAME)

STRUCTURE NUMBER	TYPE	COORDINATES		APPLICATION POINT
		S	E	
SMH-1	48" MANHOLE	2357.51	5999.64	CENT. OF MH

#### CONSTRUCTION NOTES:

- CONTRACTOR SHALL VERIFY DEPTHS AND LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO THE LAYING OF ANY PIPE
- COORDINATES ON THIS SHEET ARE PER BALTIMORE CITY DATUM.

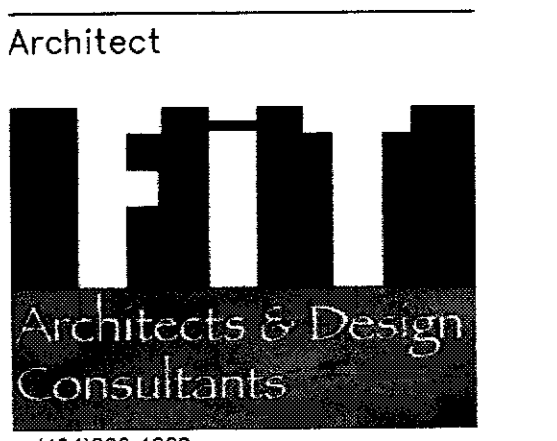


#### SANITARY SEWER PROFILE

SCALE: VERT: 1"= 5'  
 HORIZ: 1"=10'

**ESD # 7121**

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
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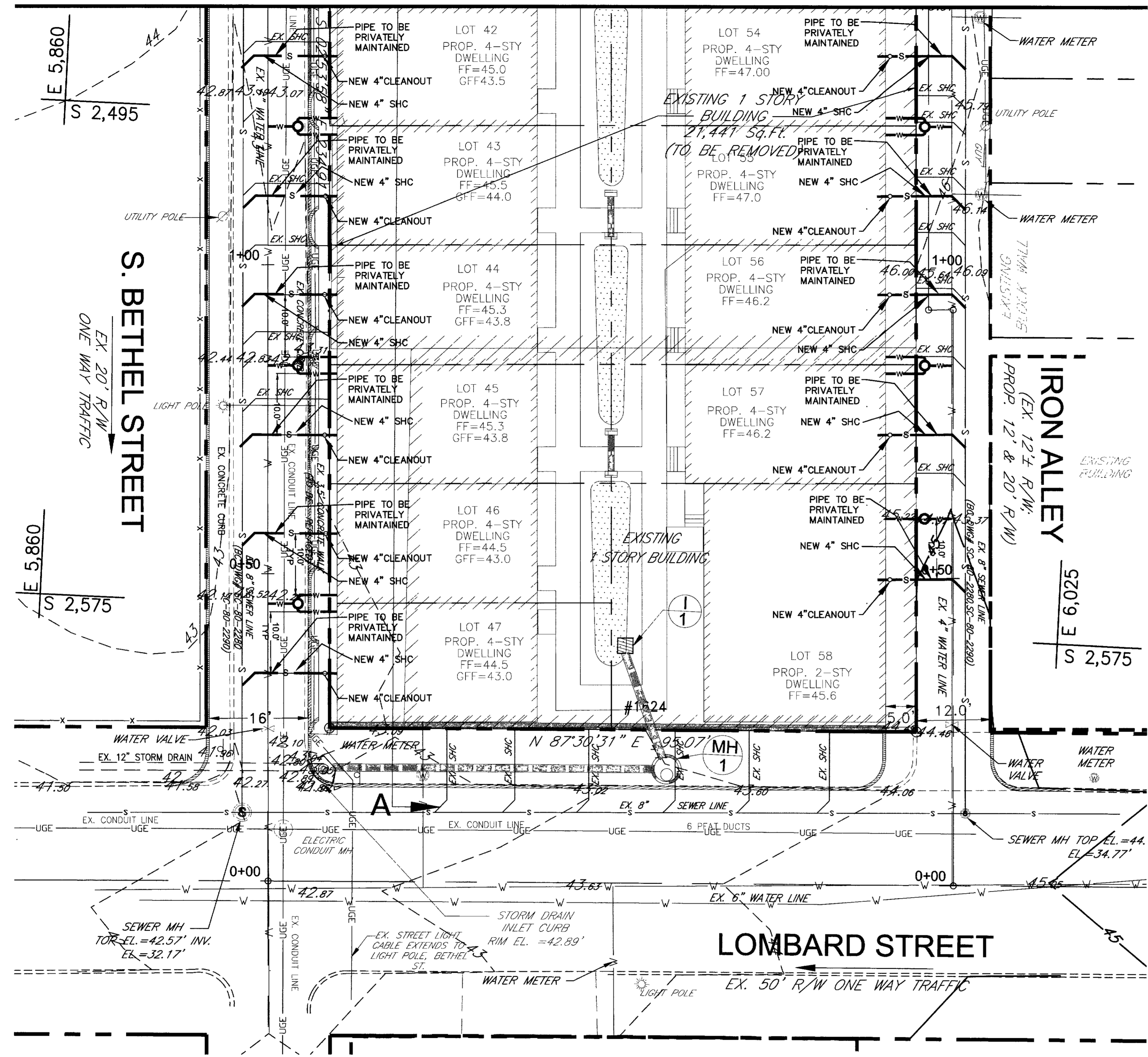
REVISION HISTORY



Date: 02/5/2016  
 Project # 1501.01

SANITARY SEWER NOTES & PROFILE

C-2.13



**EXISTING CONDITION PLAN LEGEND**

- ⊙ EX. SEWER MANHOLE
- ⊙ EX. WATER MANHOLE
- ⊙ EX. WATER METER
- ⊙ EX. STORM DRAIN MANHOLE
- ⊙ EX. TELEPHONE MANHOLE
- ⊙ EX. ELECTRICAL MANHOLE
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- ⊙ EX. WATER VALVE
- ⊙ EX. WATER METER
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- 84 — EXISTING CONTOUR
- W — EX. WATER LINE
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- S — EX. STORM DRAIN LINE
- S — EX. SEWER LINE
- UGT — EX. UNDERGROUND TELEPHONE LINE
- UGE — EX. UNDERGROUND ELECTRIC LINE
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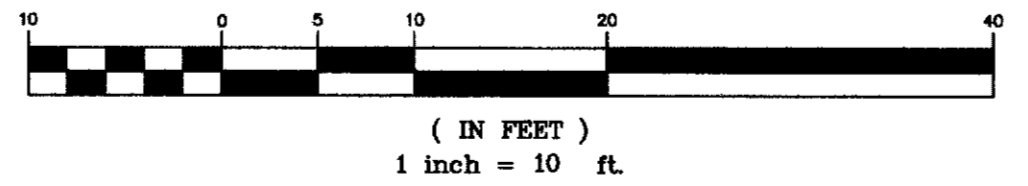
**ENGINEER'S GENERAL NOTES:**

1. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR THE COST OF ANY AND ALL DAMAGES CAUSED AS A RESULT OF HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES TO REMAIN.
2. THE CONTRACTOR MUST NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FIVE (5) DAYS PRIOR TO BEGINNING WORK.
3. THE CONTRACTOR MUST NOTIFY WATER AND WASTEWATER MAINTENANCE DIVISION 410-396-7870 AT LEAST TWO (2) WEEKS PRIOR TO STARTUP OF CONSTRUCTION ON WATER SERVICES. FOR SANITARY, CONDUIT, AND STORM WATER SERVICES CONTACT THE PERMIT INSPECTION SECTION AT 410-396-4840. THE CONTRACTOR MUST RECEIVE WRITTEN NOTICE TO PROCEED FROM THE WATER AND WASTEWATER MAINTENANCE DIVISION OR THE PERMIT INSPECTION SECTION PRIOR TO PERFORMING ANY WORK.
4. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE PUBLIC WORKS DEVELOPER'S AGREEMENT, THE LATEST EDITION OF THE CITY OF BALTIMORE, DEPT. OF PUBLIC WORKS, SPECIFICATIONS FOR MATERIALS, HIGHWAYS, BRIDGES, UTILITIES AND INCIDENTAL STRUCTURES, DATED 2008 AND AS AMENDED TO DATE, STANDARD DETAILS FOR WATER, WASTEWATER AND STORM DRAINS, DATED 2008 AND AS AMENDED TO DATE, AND BOOK OF STANDARDS FOR STRUCTURES, ROADWAYS AND UTILITIES, AS AMENDED TO DATE.
5. CONTRACTOR SHALL OBSERVE EXTREME CAUTION WHEN WORKING NEAR OR OVER EXISTING WATER, GAS AND ELECTRIC FACILITIES.
6. SERVICES MUST BE CAPPED AND THE COMPLETED SERVICES WILL BE VISUALLY INSPECTED FOR LEAKS.
7. THE CONTRACTOR WILL DISCHARGE THE CHLORINATED FLUSH WATER INTO A SANITARY SEWER. THE MAX DISCHARGE RATE WILL BE 80 G.P.M. (COST TO BE INCLUDED IN PRICE OF ITEMS BID).
8. ONLY BALTIMORE CITY PERSONNEL WILL OPERATE EXISTING VALVES OR NEW VALVES AFTER THEY ARE PLACED IN SERVICE. THE CONTRACTOR WILL NOTIFY THE BALTIMORE CITY INSPECTOR TO ARRANGE A SHUTDOWN WITH THE CITY AT LEAST FOUR DAYS PRIOR TO THE PROPOSED SHUTDOWN IF REQUIRED. IF THE INSPECTOR IN THE FIELD IS UNAVAILABLE, CALL THE BALTIMORE CITY AREA ENGINEER AT 410-396-7807.
9. THE CONTRACTOR FOR THE MAIN EXTENSION WILL NOTIFY BALTIMORE CITY BUREAU OF WATER AND WASTEWATER, 396-7807, 72 HOURS BEFORE STARTING WORK.
10. CONTRACTOR SHALL NOTIFY STREET LIGHTING MAINTENANCE AT 410-396-5965 OR 410-396-1686 AT LEAST FOURTEEN (14) DAYS PRIOR TO STARTING WORK.
11. STREET LIGHTING CABLES AND POLES SHALL BE PROTECTED AND SERVICE MAINTAINED AT ALL TIMES. CONTRACTOR SHALL CALL BGE, DEBBIE BARDOFF, 410-291-4900, AT LEAST SEVEN DAYS PRIOR TO ANY EXCAVATION.
12. CONDUIT EXISTS WITHIN THE WORK AREA. CONTRACTOR SHALL USE CAUTION WHEN EXCAVATING AND INSTALLING ANY NEW UTILITY. CONTRACTOR SHALL CALL CONDUIT MAINTENANCE 410-396-1515 PRIOR TO STARTING WORK.
13. CONTRACTOR SHALL CONFIRM INVERT ELEVATION OF EXISTING SANITARY SEWER MAIN AND ALL UTILITY CROSSINGS PRIOR TO ANY NEW CONSTRUCTION. ANY DEVIATION NOTED FROM TEST PIT INFORMATION WILL REQUIRE RED LINE REVISED PLANS APPROVED BY THE UTILITY ENGINEERING SECTION PRIOR TO ANY NEW CONSTRUCTION.
14. BEFORE BEGINNING CONSTRUCTION, CONTRACTOR SHALL PERFORM TEST PIT(S) TO VERIFY LOCATION OF ALL EXISTING UTILITIES AND CLEARANCE FROM NEW WORK.
15. TEST PIT ALL UTILITY CROSSINGS INCLUDING TIE-IN POINTS PRIOR TO BEGINNING ANY WORK. ANY DEVIATIONS IN DESIGN CAUSED BY THE TEST PIT INFORMATION WILL REQUIRE RED LINE REVISIONS SUBMITTED TO THE WATER AND WASTEWATER ENGINEERING DIVISION FOR APPROVAL.

**SEWER SERVICE PLAN - 2**

SCALE: 1"=10'

**GRAPHIC SCALE**



**GENERAL NOTES**

1. FOR TRENCH REPAIR REFER TO B.C.576.19-1 AND B.C.576.19-2 OR 576.20-1 AND B.C.576.20-2 AS APPLICABLE.
2. ANY CURB DISTURBED BY THIS INSTALLATION SHALL BE REPLACED IN-KIND TO THE NEAREST EXISTING JOINT.
3. SIDEWALKS DISTURBED BY CONSTRUCTION SHALL BE REPLACED TO THE NEAREST JOINT USING 5" OF MIX NO. 2 CONCRETE ON 3" OF CR-6.
4. THE CONTRACTOR IS TO MAINTAIN AND PROTECT ALL LIGHTING SYSTEMS DURING CONSTRUCTION.
5. ALL WORK SHALL BE IN ACCORDANCE WITH CITY OF BALTIMORE DEPARTMENT OF PUBLIC WORKS SPECIFICATIONS FOR MATERIAL, BRIDGES, UTILITIES AND INCIDENTAL STRUCTURES (1979) AND ADDENDUM THERETO.
6. OBSTRUCTIONS SHOWN ON THIS DRAWING ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE CITY DOES NOT WARRANT OR GUARANTEE THE CORRECTNESS OR THE COMPLETENESS OF THE INFORMATION GIVEN. THE CONTRACTOR MUST VERIFY ALL SUCH INFORMATION TO THEIR OWN SATISFACTION.
7. ANY DAMAGE OR DEMOLITION OF EXISTING FEATURES IN OR ADJACENT TO THE LIMIT OF DISTURBANCE AND NOT PART OF THE WORK SUCH AS BUT NOT LIMITED TO SIDEWALKS AND CURB AND GUTTERS SHALL BE REPAIRED AND REPLACED BY THE CONTRACTOR IN ACCORDANCE WITH BALTIMORE CITY STANDARDS.
8. IF SIDEWALK CLOSURE IS NECESSARY DURING CONSTRUCTION ENSURE AN ALTERNATIVE PEDESTRIAN ACCESS THAT IS ADEQUATELY SIGNED.

**ESD # 7121**

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Architect



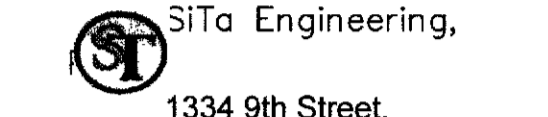
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REVISION HISTORY



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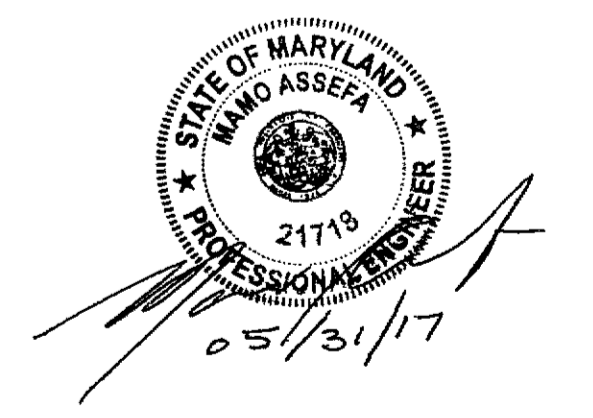
Project # 1501.01

**SANITARY SEWER SERVICE PLAN & NOTES**

C-2.14

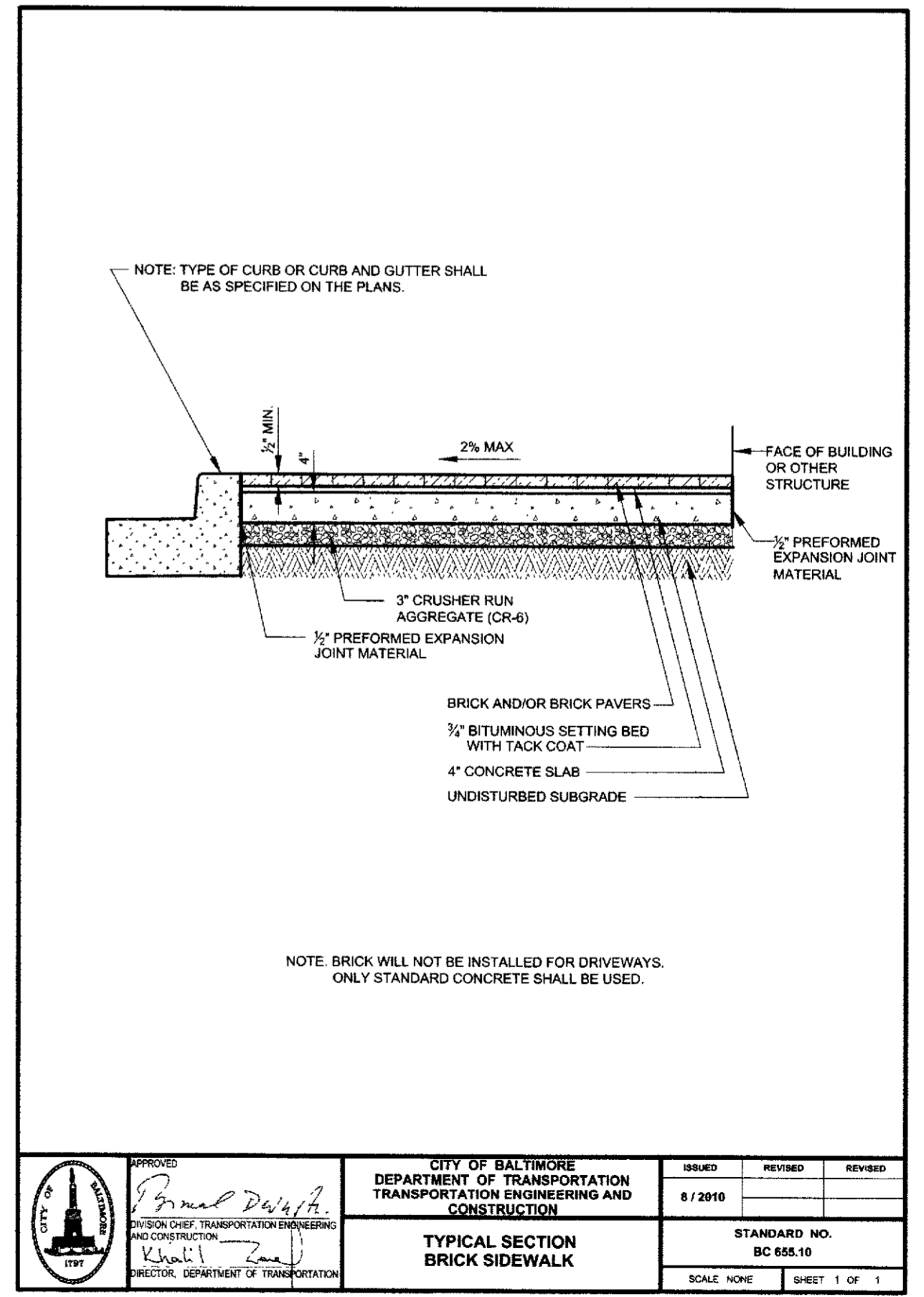
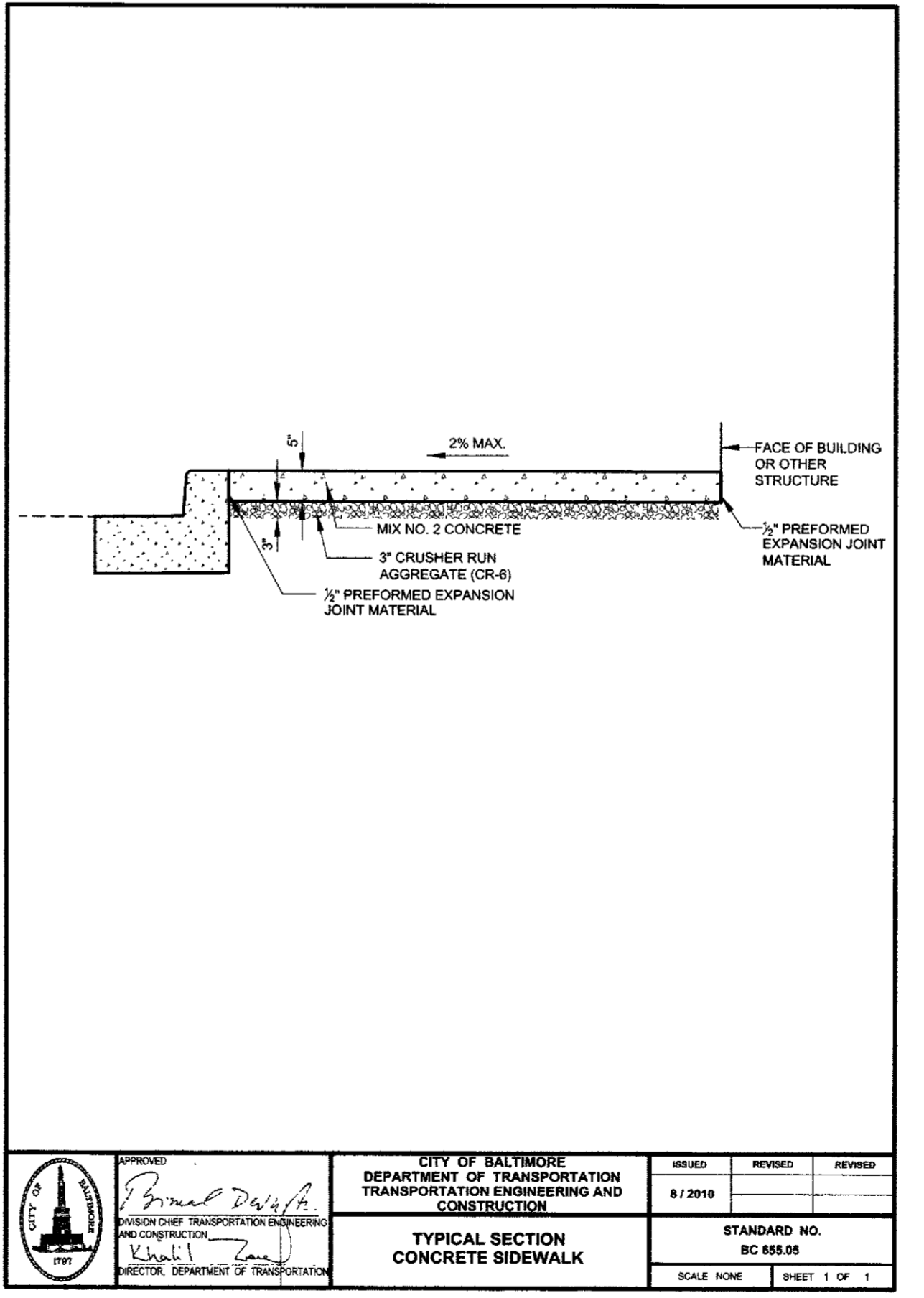
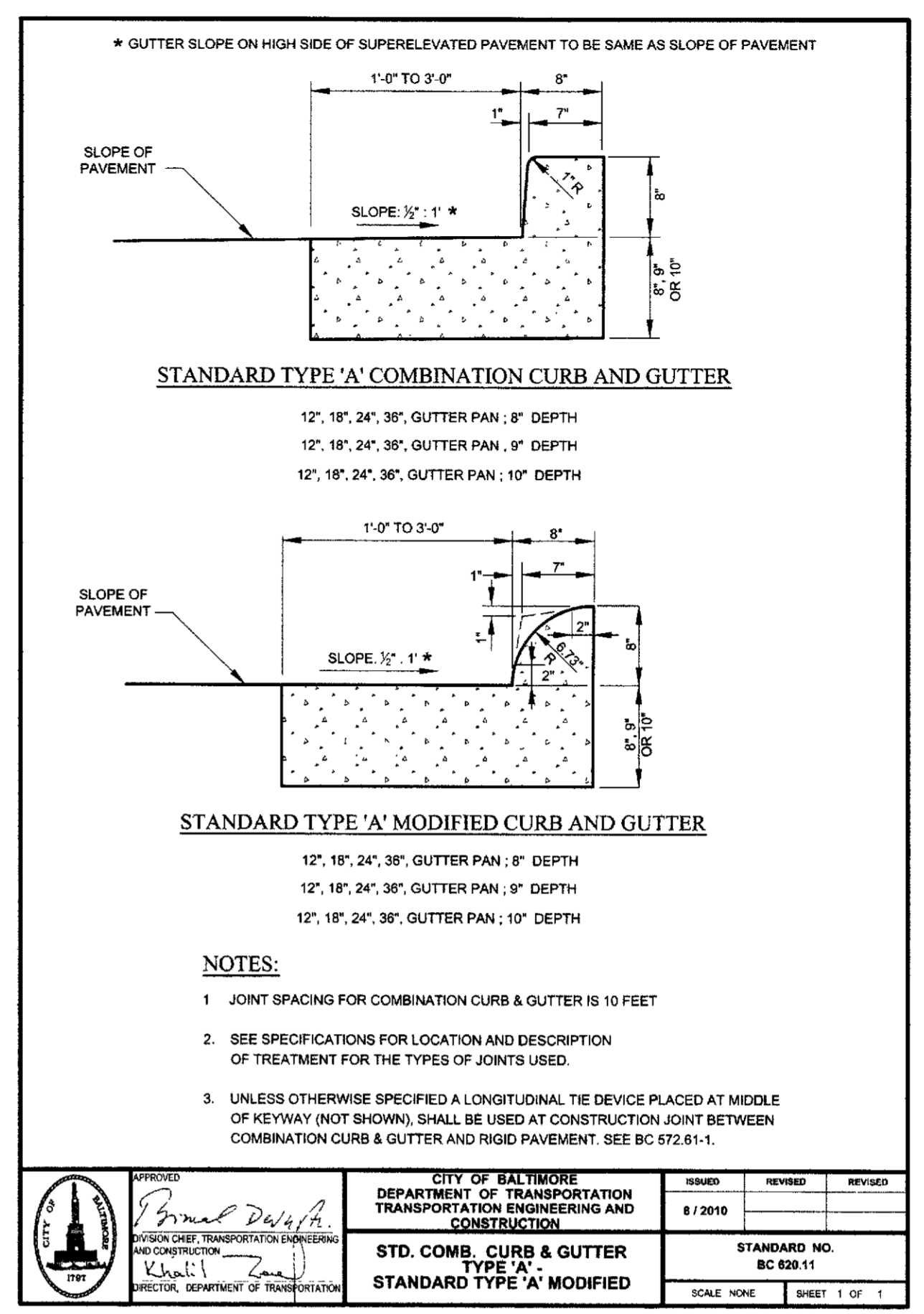
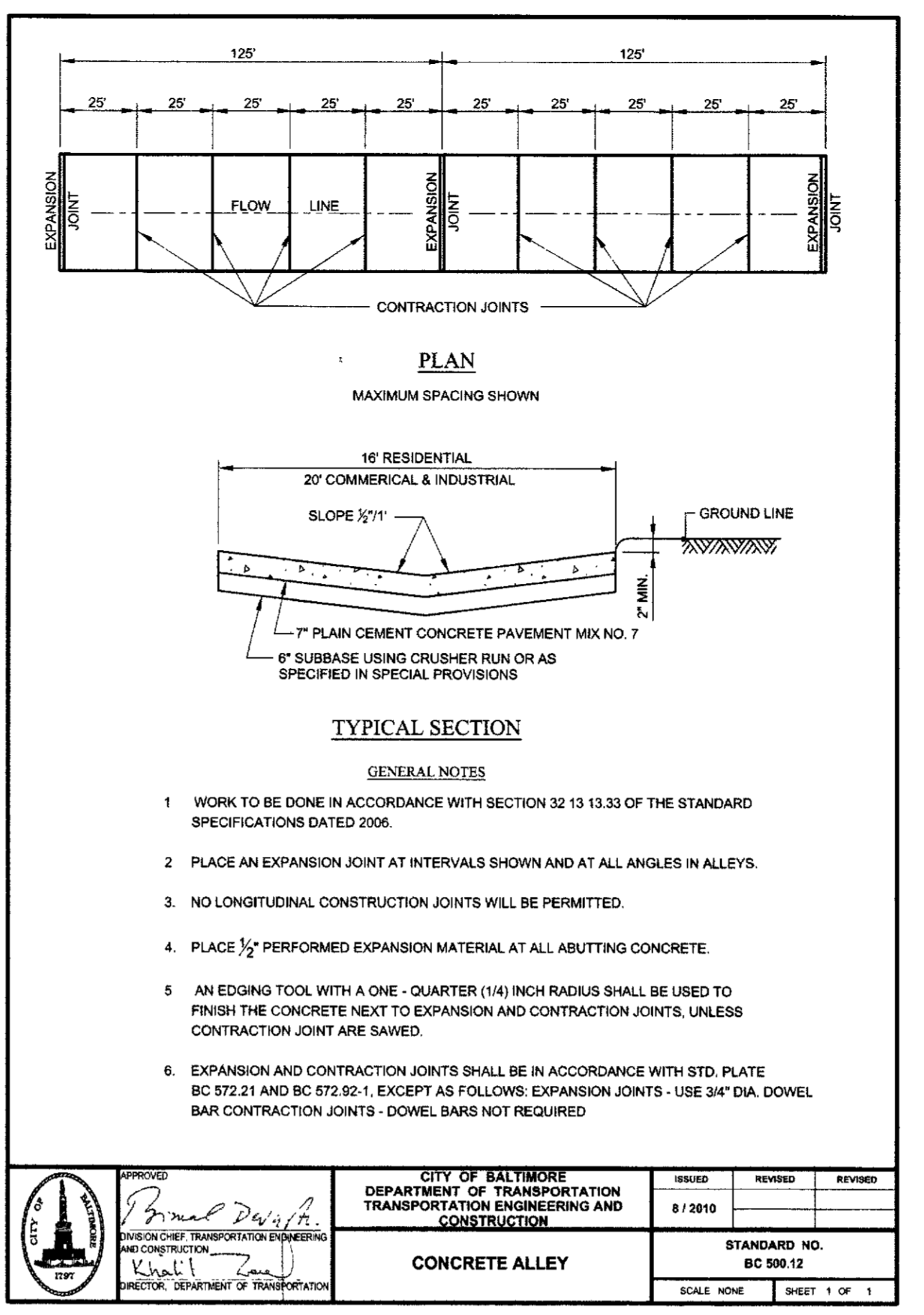
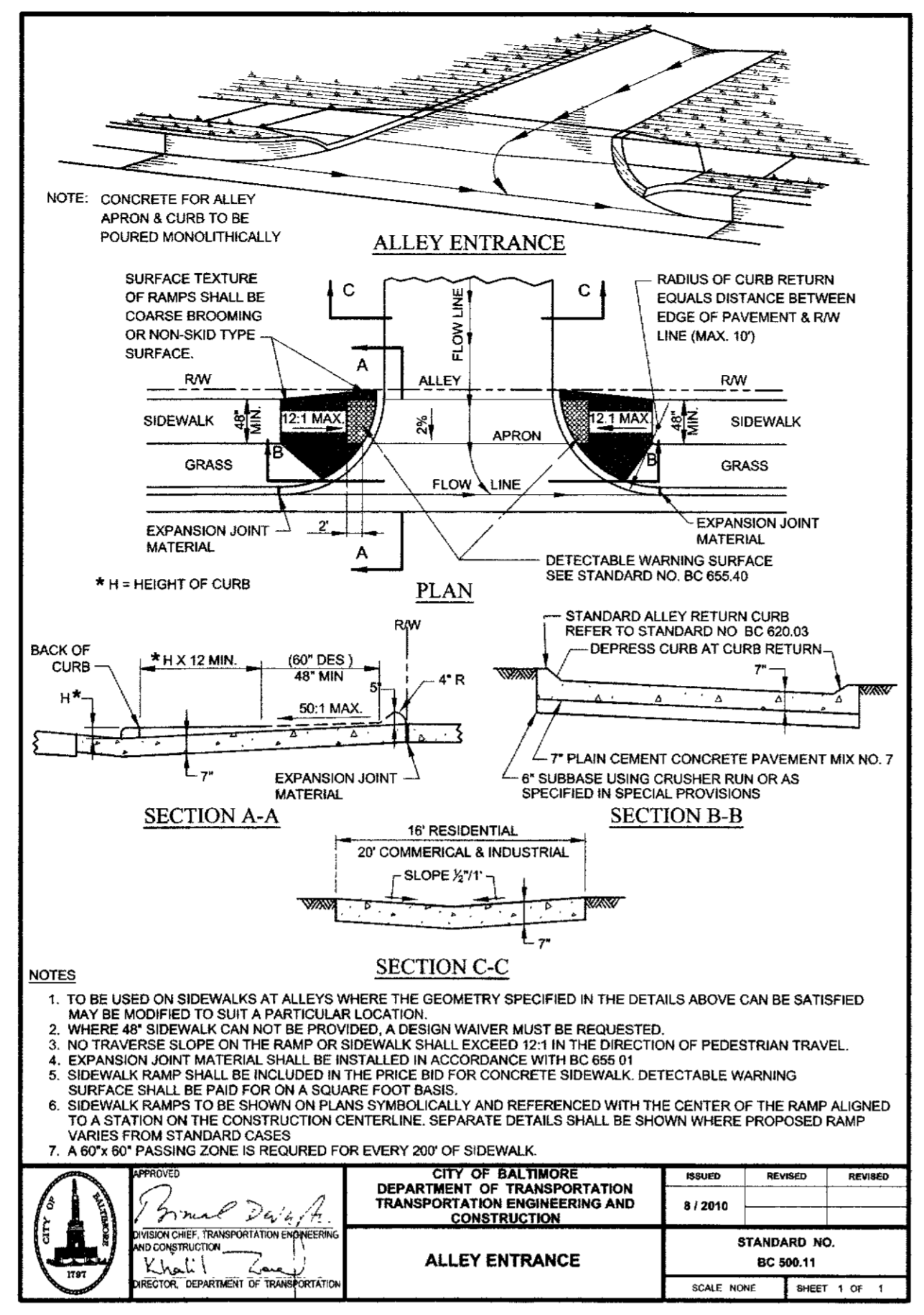
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REVISION HISTORY



Date: 02/5/2016  
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**SITE DETAILS-1**

C-2.15



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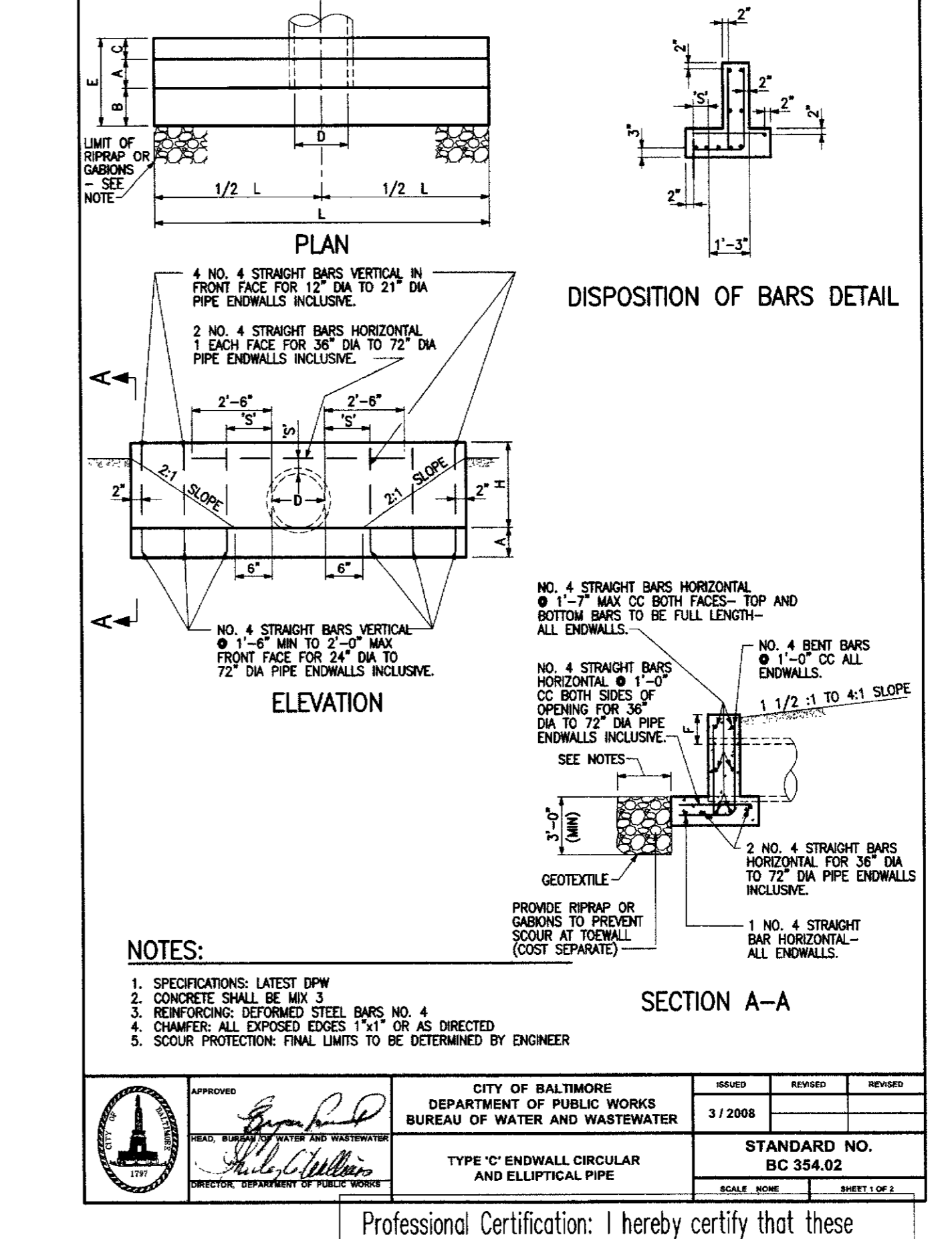
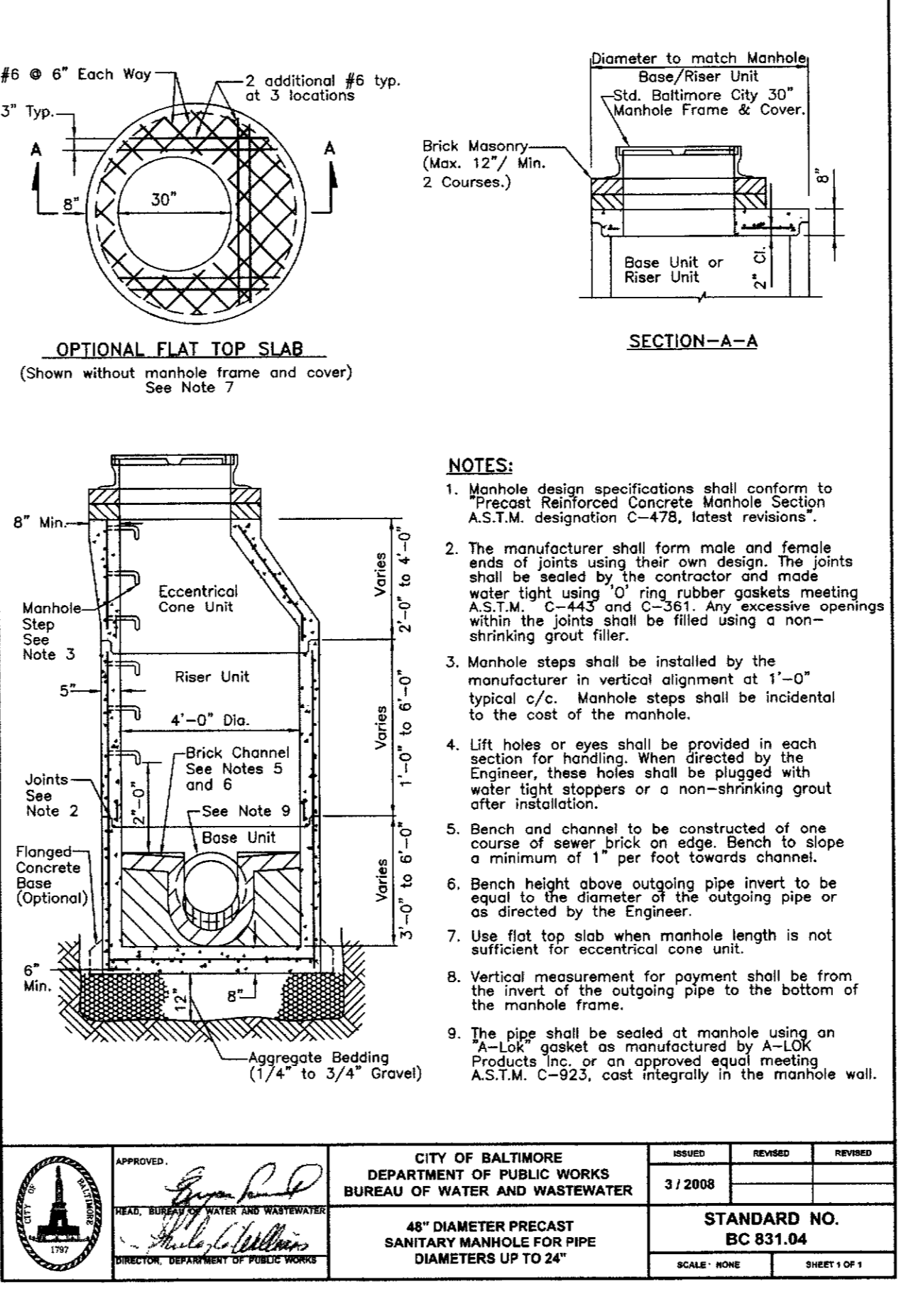
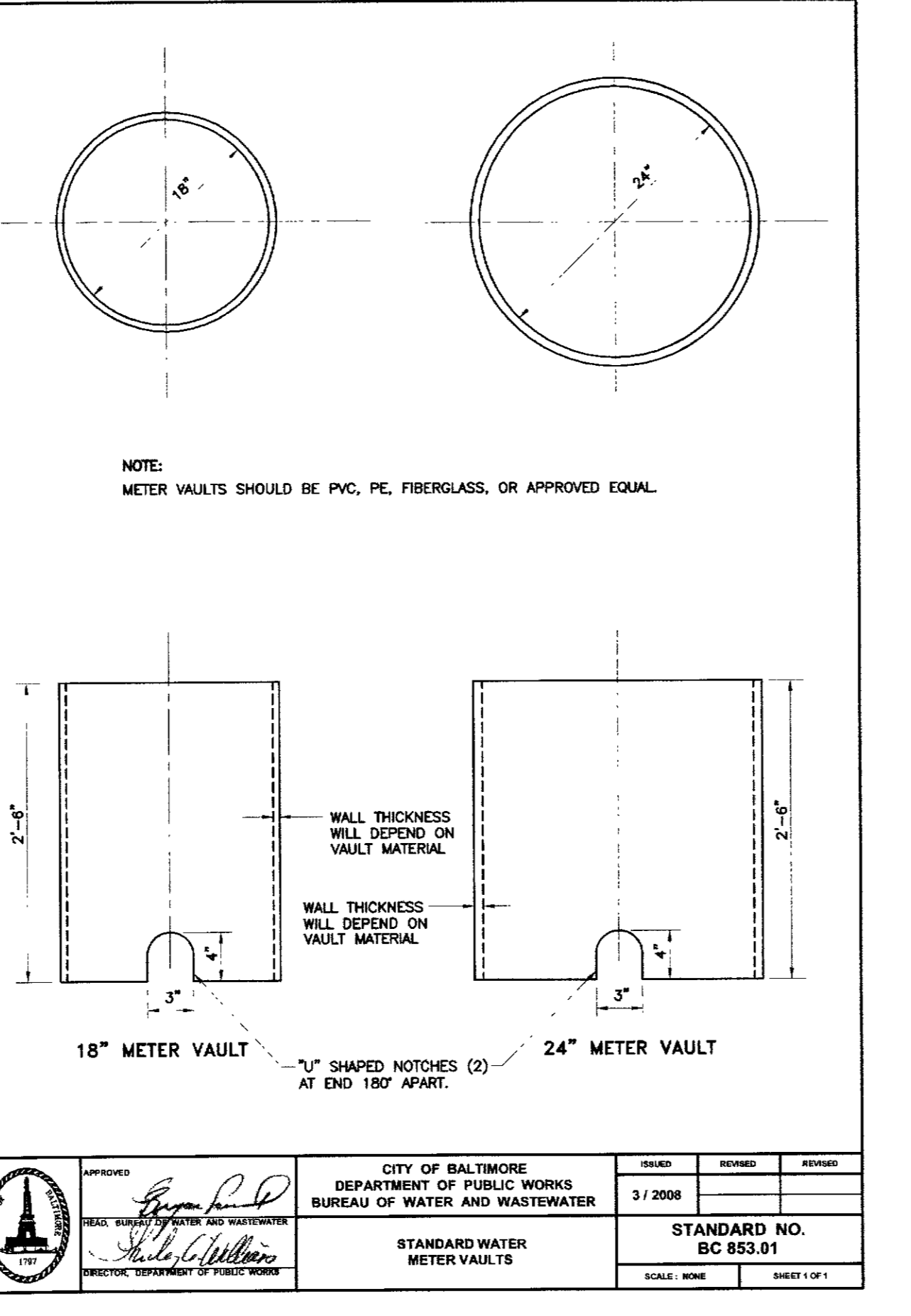
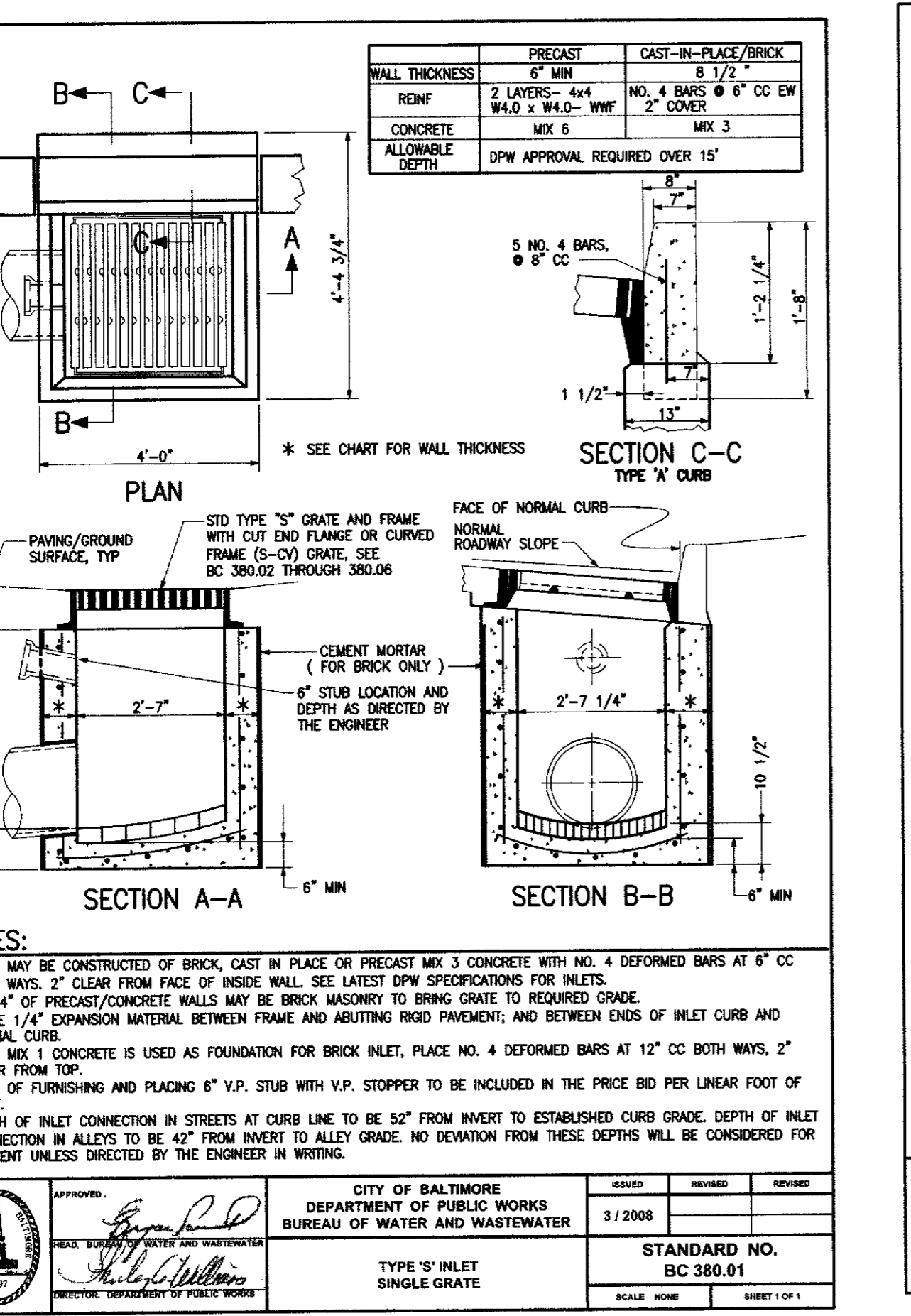
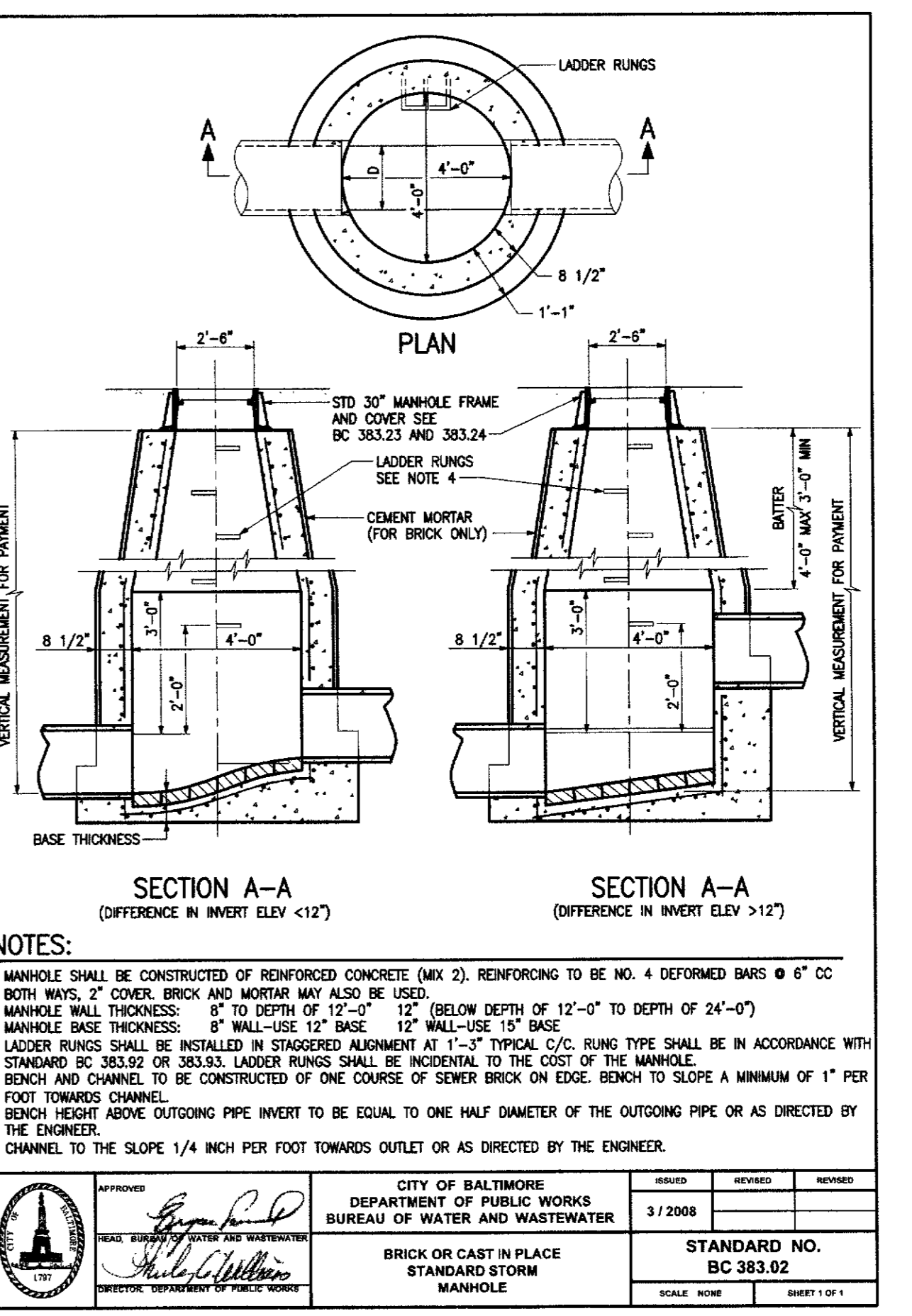
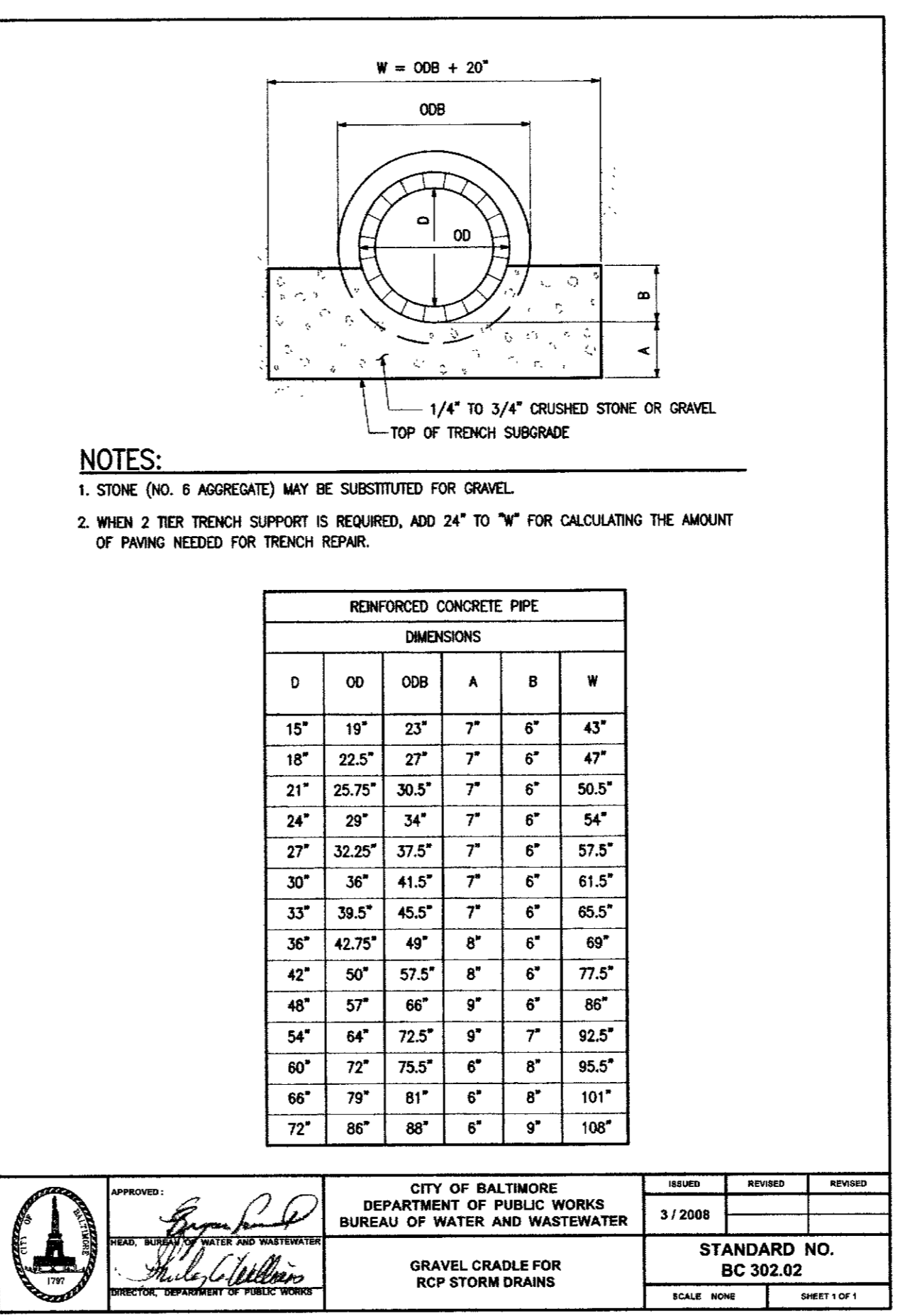
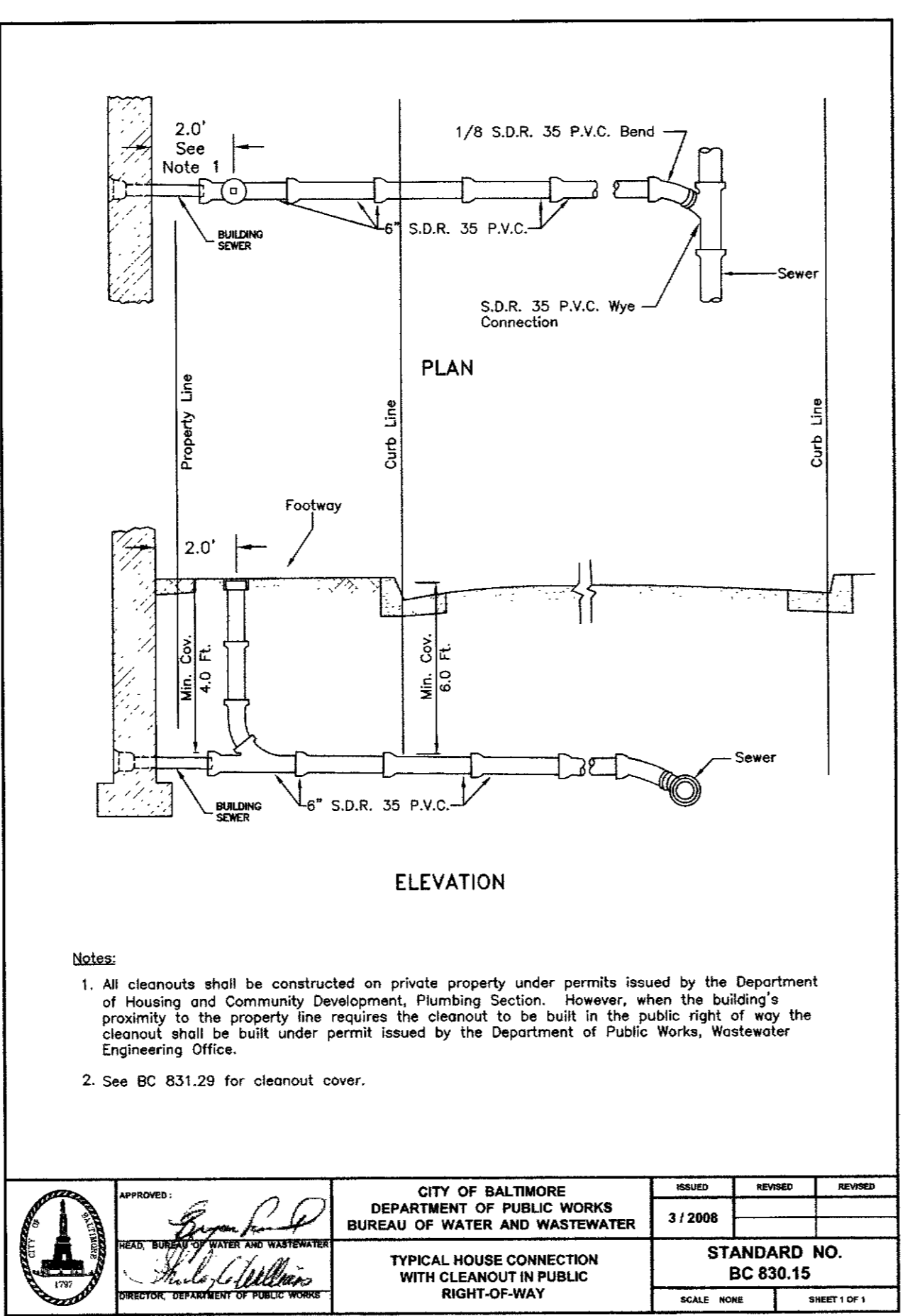
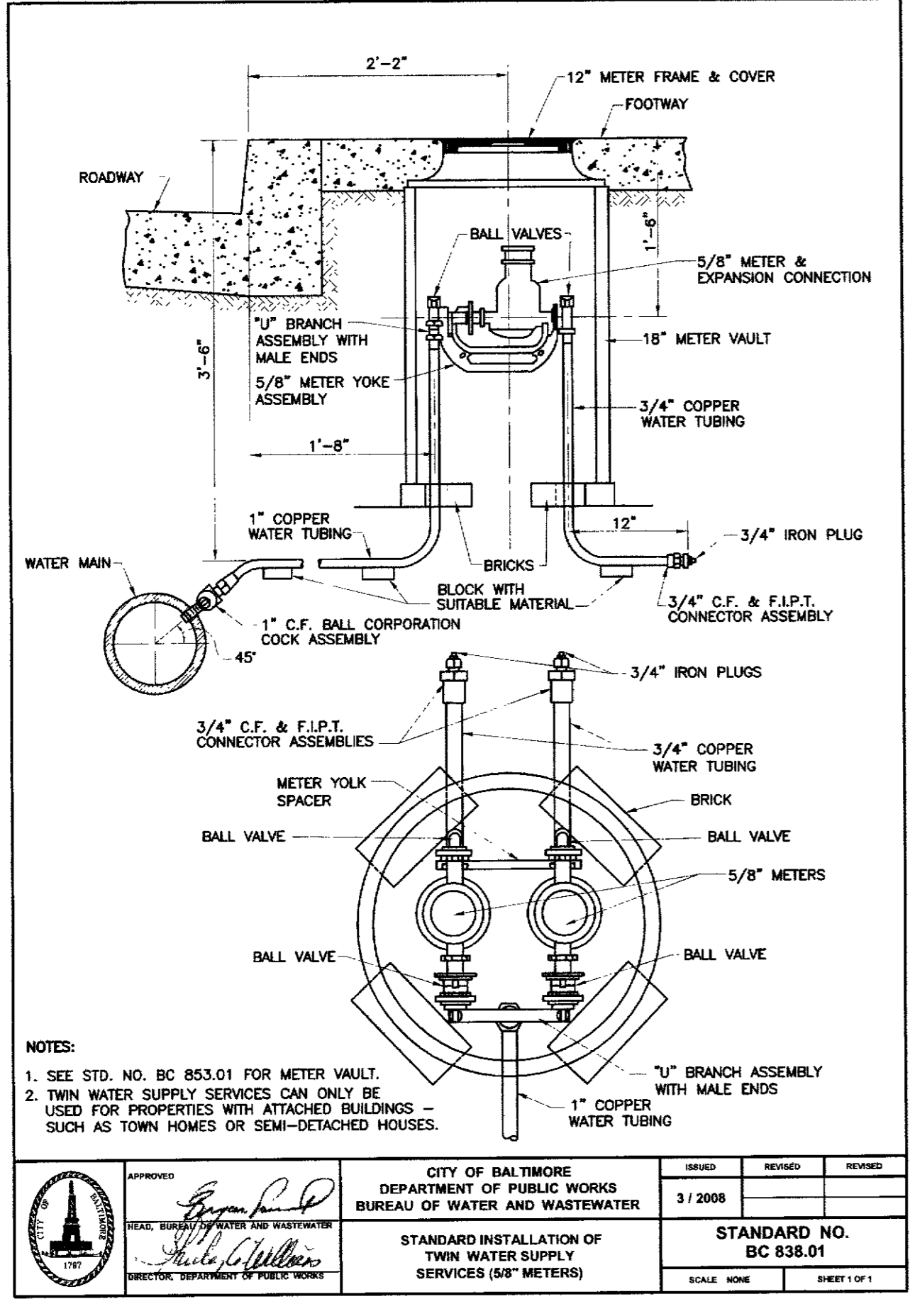
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3	SWM-ES	09/29/2016
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1	BID-SET	02/5/2016
REV DESCRIPTION DATE		
REVISION HISTORY		



Date: 02/5/2016  
Project # 1501.01

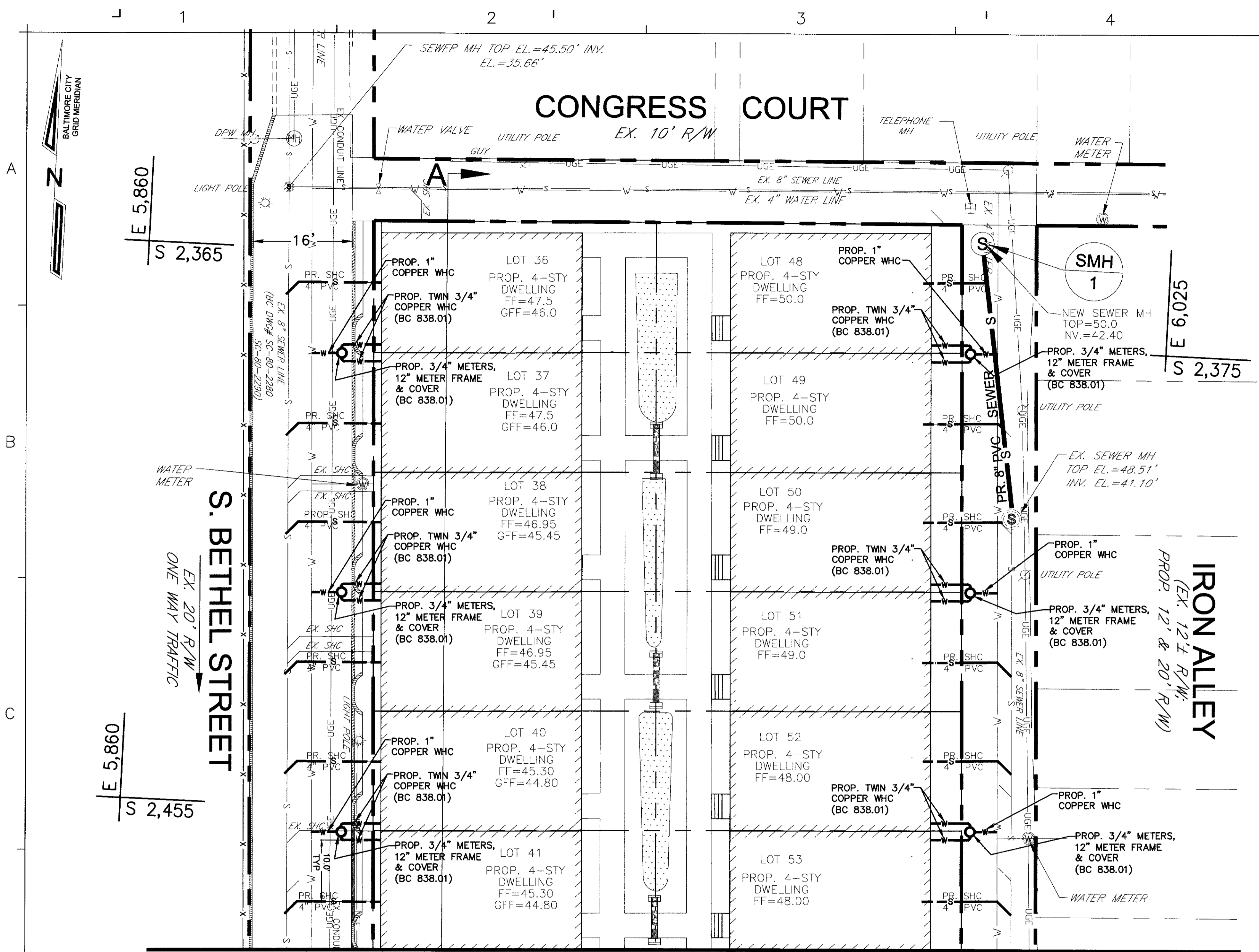
SITE DETAIL - 2

C-2.16



**ESD # 7121**

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
License No. 21718, Expiration Date: 2017-09-16.



MATCH LINE SHEET DA C-3B

**WATER SERVICE PLAN - 1**

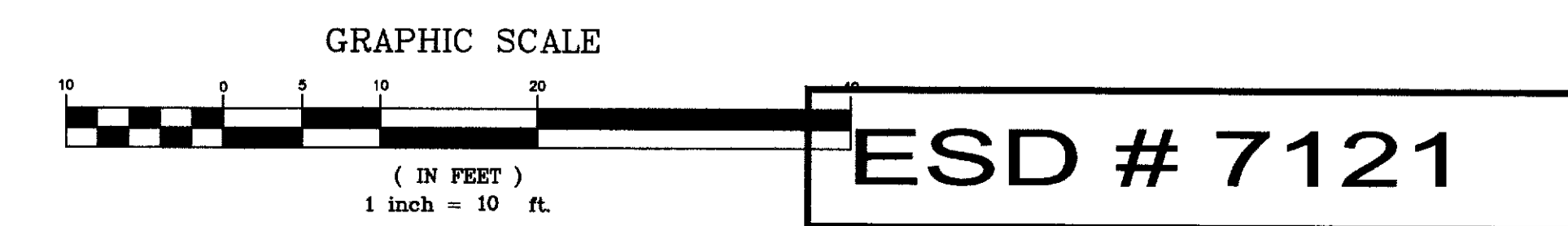
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**EXISTING CONDITION PLAN LEGEND**

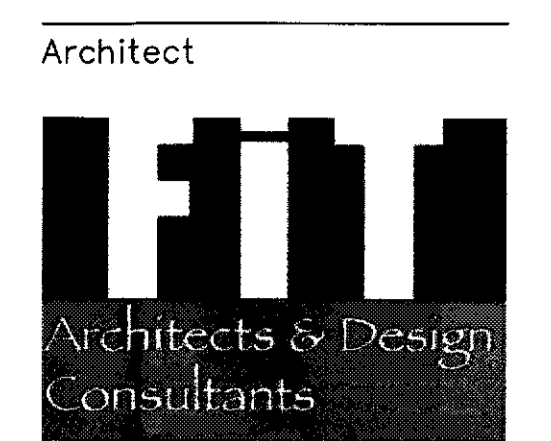
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- ⊙ EX. WATER MANHOLE
- ⊙ EX. WATER METER
- ⊙ EX. STORM DRAIN MANHOLE
- ⊙ EX. TELEPHONE MANHOLE
- ⊙ EX. ELECTRICAL MANHOLE
- ⊙ EX. GAS MANHOLE
- ⊙ EX. FIRE HYDRANT
- ⊙ EX. SIGN
- ⊙ EX. LIGHT POLE
- ⊙ EX. GAS VALVE
- ⊙ EX. YARD GRATE-INLET
- ⊙ EX. WATER VALVE
- ⊙ EX. WATER METER
- ⊙ EX. TREE
- ⊙ EX. TRAVERSE
- — — — — PROPERTY LINE
- 84 EXISTING CONTOUR
- W — EX. WATER LINE
- G — EX. GAS LINE
- — — — — EX. STORM DRAIN LINE
- S — EX. SEWER LINE
- UGT — EX. UNDERGROUND TELEPHONE LINE
- UGE — EX. UNDERGROUND ELECTRIC LINE
- E — EX. OVERHEAD ELECTRIC LINE
- X — EX. FENCE

**GENERAL NOTES**

1. FOR TRENCH REPAIR REFER TO B.C.576.19-1 AND B.C.576.19-2 OR 576.20-1 AND B.C.576.20-2 AS APPLICABLE.
2. ANY CURB DISTURBED BY THIS INSTALLATION SHALL BE REPLACED IN-KIND TO THE NEAREST EXISTING JOINT.
3. SIDEWALKS DISTURBED BY CONSTRUCTION SHALL BE REPLACED TO THE NEAREST JOINT USING 5" OF MIX NO. 2 CONCRETE ON 3" OF CR-6.
4. THE CONTRACTOR IS TO MAINTAIN AND PROTECT ALL LIGHTING SYSTEMS DURING CONSTRUCTION.
5. ALL WORK SHALL BE IN ACCORDANCE WITH CITY OF BALTIMORE DEPARTMENT OF PUBLIC WORKS SPECIFICATIONS FOR MATERIAL, BRIDGES, UTILITIES AND INCIDENTAL STRUCTURES (1979) AND ADDENDUM THERETO.
6. OBSTRUCTIONS SHOWN ON THIS DRAWING ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE CITY DOES NOT WARRANT OR GUARANTEE THE CORRECTNESS OR THE COMPLETENESS OF THE INFORMATION GIVEN. THE CONTRACTOR MUST VERIFY ALL SUCH INFORMATION TO THEIR OWN SATISFACTION.
7. ANY DAMAGE OR DEMOLITION OF EXISTING FEATURES IN OR ADJACENT TO THE LIMIT OF DISTURBANCE AND NOT PART OF THE WORK SUCH AS BUT NOT LIMITED TO SIDEWALKS AND CURB AND GUTTERS SHALL BE REPAIRED AND REPLACED BY THE CONTRACTOR IN ACCORDANCE WITH BALTIMORE CITY STANDARDS.
8. IF SIDEWALK CLOSURE IS NECESSARY DURING CONSTRUCTION ENSURE AN ALTERNATIVE PEDESTRIAN ACCESS THAT IS ADEQUATELY SIGNED.



Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
License No. 21718, Expiration Date: 2017-09-16



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femelliso.fidac@gmail.com

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1334 9th Street,  
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Washington DC, 20001

Owner / Client  
**Herena USA, LLC**  
210 E. Lexington Street  
Baltimore, Maryland 21202

Herena USA  
E. Lombard Street  
1622-1634 Lombard Street  
922 S.Bethel Street  
Baltimore, MD 21212

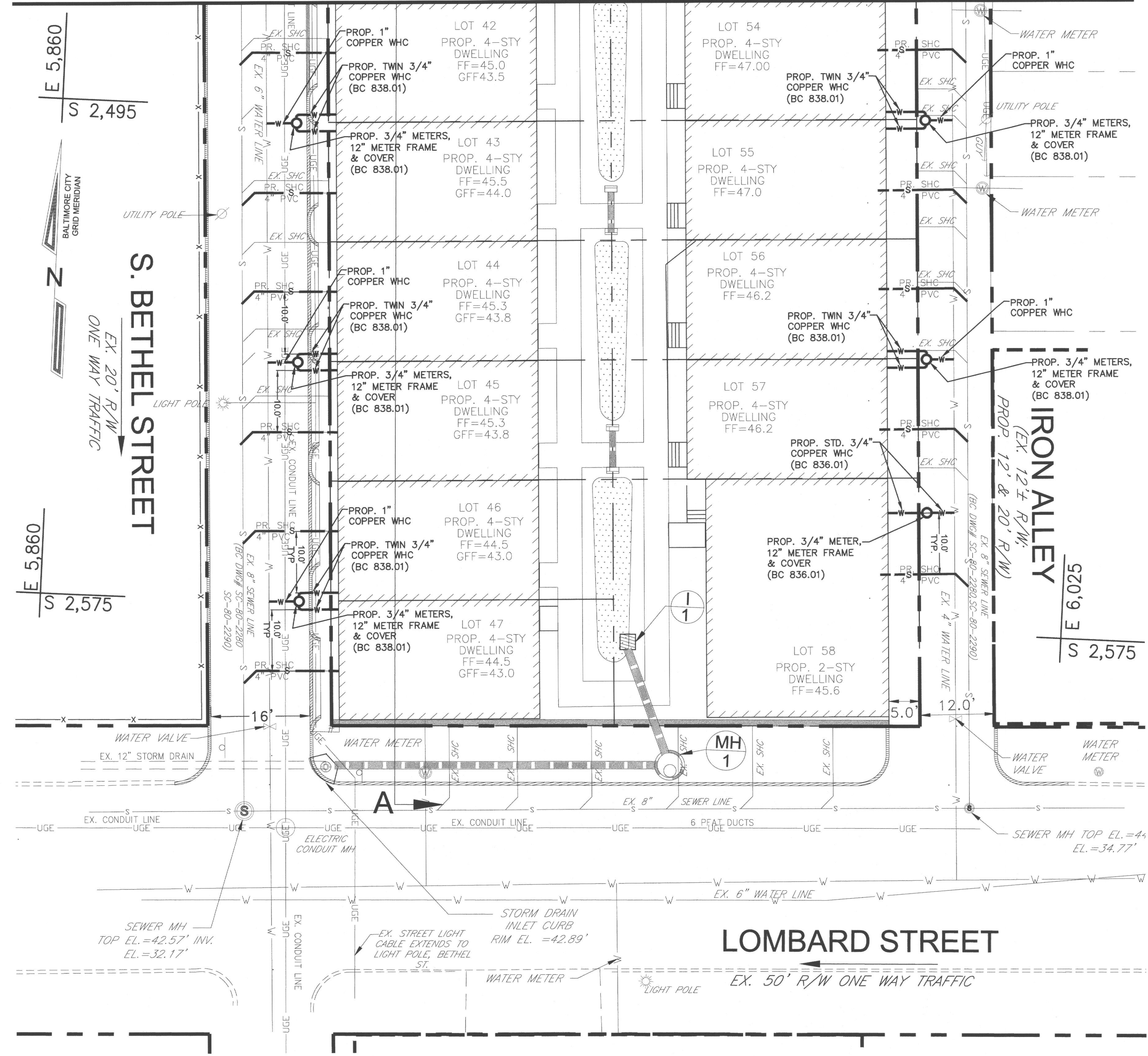
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3	SWM-ES	09/29/2016
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1	BID-SET	02/5/2016

REVISION HISTORY

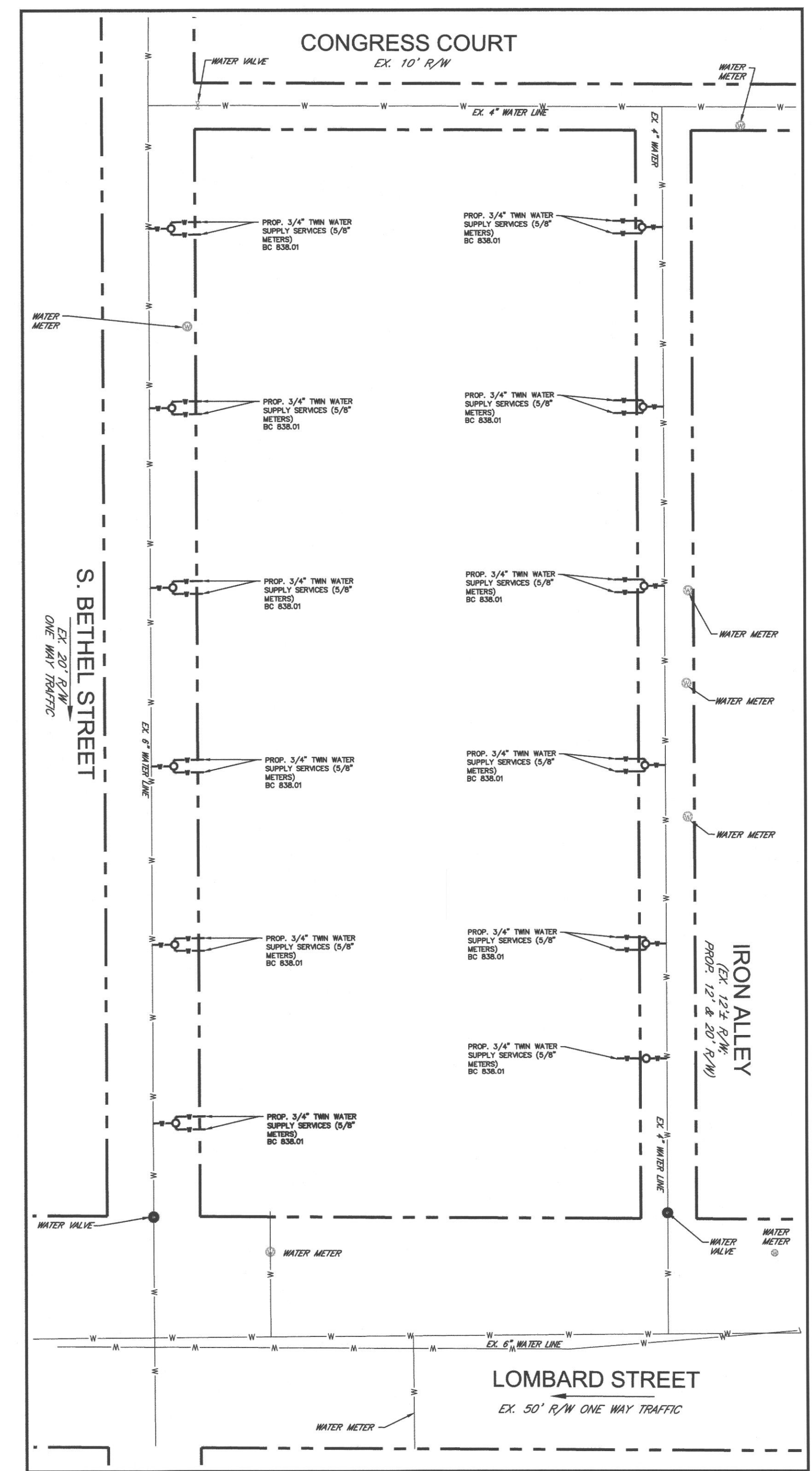


Date: 02/5/2016  
Project # 1501.01  
**WATER SERVICE PLAN-1**

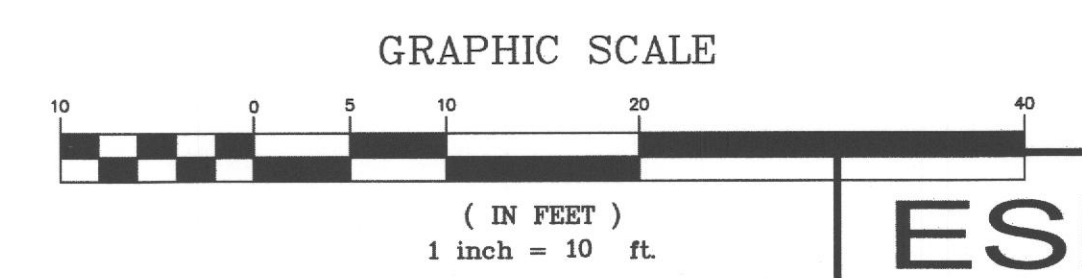
C-2.20



**WATER SERVICE PLAN - 2**  
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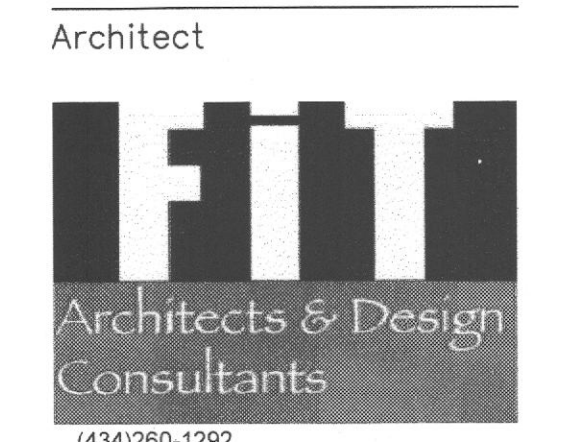


**SHUT-OFF DIAGRAM**  
SCALE: 1"=20'



**ESD # 7121**

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REV	DESCRIPTION	DATE
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3	SWM-ES	09/29/2016
2	SWM-ES	08/15/2016
1	BID-SET	02/5/2016

REVISION HISTORY



Date: 02/5/2016  
Project # 1501.01  
**WATER SERVICE PLAN-2**

C-2.21



434/260-1292  
fornelisso.ftadcd@gmail.com

Civil / Structural



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Silver Spring, MD 20906

MEP



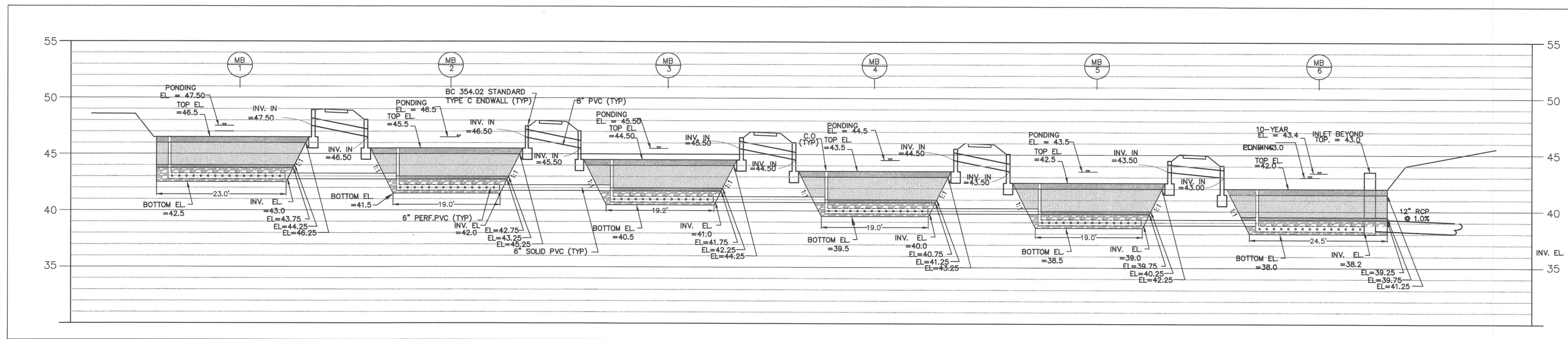
1334 9th Street,  
NW Suite 206  
Washington DC, 20001

Owner / Client

Herena USA,  
LLC

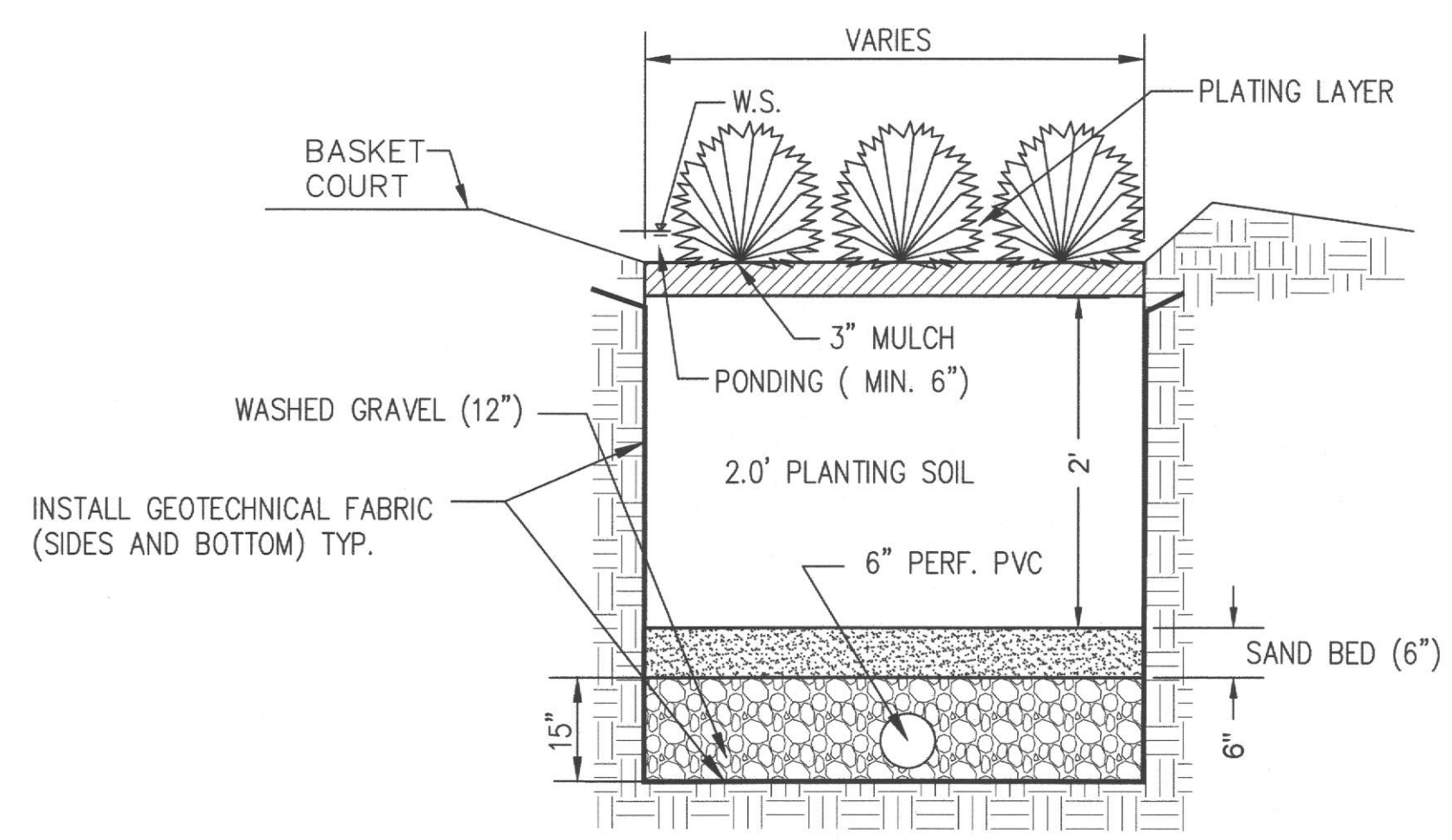
210 E. Lexington Street  
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**MB-1 THRU MB-6 SECTION AND PROFILE**

SCALE H: 1" = 10'  
V: 1" = 5'



**TYPICAL MICRO-BIORETENTION SECTION**

NOT TO SCALE

**MAINTENANCE SCHEDULE FOR BIORETENTION AREAS**

DESCRIPTION	METHOD	FREQUENCY	TIME OF THE YEAR
<b>SOIL</b>			
INSPECT AND REPAIR EROSION	VISUAL	MONTHLY	MONTHLY
<b>ORGANIC LAYER</b>			
REMULCH ANY VOID AREAS	BY HAND	WHENEVER NEEDED	WHENEVER NEEDED
REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER (OPTIONAL)	BY HAND	ONCE EVERY TWO TO THREE YEARS	SPRING
ANY ADDITIONAL MULCH ADDED (OPTIONAL)	BY HAND	ONCE A YEAR	SPRING
<b>PLANTS</b>			
REMOVAL AND REPLACEMENT OF ALL DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT	SEE PLANTING SPECIFICATIONS	TWICE A YEAR	3/15 TO 4/30 AND 10/1 TO 11/30
TREAT ALL DISEASED TREES AND SHRUBS	MECHANICAL OR BY HAND	N/A	VARIES, DEPENDS ON INSECT OR DISEASE INFESTATION
WATERING OF PLANT MATERIAL SHALL TAKE PLACE AT THE END OF EACH DAY FOR FOURTEEN CONSECUTIVE DAYS AFTER PLANTING HAS BEEN COMPLETED	BY HAND	IMMEDIATELY AFTER COMPLETION OF PROJECT	N/A
REPLACE STAKES AFTER ONE YEAR	BY HAND	ONCE A YEAR	ONLY REMOVE STAKES IN THE SPRING
REPLACE ANY DEFICIENT STAKES OR WIRES	BY HAND	N/A	WHENEVER NEEDED

**BIORETENTION AREA SOIL SPECIFICATIONS**

**A. PLANTING SOIL**

THE BIORETENTION AREAS SHALL CONSIST OF A PLANTING SOIL HAVING A COMPOSITION OF 12 PERCENT SOIL FINES MAXIMUM AND SHALL BE OF A SANDY LOAM OR LOAMY SAND TEXTURE. LOAMY SANDS MAY BE UTILIZED FOR THE PLANTING SOIL BUT MUST CONSIST OF 85% MINIMUM. IN ADDITION, THE FURNISHED PLANTING SOIL SHALL BE UNIFORM COMPOSITION, FREE OF STONES, STUMPS, ROOTS OR SIMILAR OBJECTS LARGER THAN ONE INCH, BRUSH OR ANY OTHER MATERIAL OR SUBSTANCE WHICH MAY BE HARMFUL TO PLANT GROWTH, OR HINDRANCE TO PLANTING OR MAINTENANCE OPERATIONS.

THE PLANTING SOIL SHALL BE FREE OF PLANT PARTS OF BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, MUGWORT, NUTSEDGE, POISON IVY CANADIAN THISTLE OR OTHER AS SPECIFIED.

IT SHALL NOT CONTAIN TOXIC SUBSTANCES HARMFUL TO PLANT GROWTH.

THE PLANTING SOIL SHALL BE TESTED AND MEET THE FOLLOWING CRITERIA:

- pH RANGE: 5.5 TO 6.5
- ORGANIC MATTER: 1.5 TO 3.0%
- MAGNESIUM: 35lb/ACRE
- PHOSPHORUS: 100lb/ACRE
- POTASSIUM: 85lb/ACRE
- SOLUBLE SALTS: NOT TO EXCEED 500 PPM

THE FOLLOWING TESTING FREQUENCIES SHALL APPLY TO THE ABOVE SOIL CONSTITUENTS:

pH ORGANIC MATTER: 1 TEST PER 90 CUBIC YARDS, BUT NO MORE THAN 1 TEST PER BIORETENTION AREA.

MAGNESIUM, PHOSPHORUS, POTASSIUM, SOLUBLE SALTS: 1 TEST PER 500 CUBIC YARDS, BUT NO LESS THAN 1 TEST PER BORROW SOURCE.

ONE GRAIN SIZE ANALYSIS SHALL BE PERFORMED PER 90 CUBIC YARDS OF PLANTING SOIL, BUT NO LESS THAN ONE PER BIORETENTION AREA.

**B. MULCH LAYER SPECIFICATIONS**

A MULCH LAYER SHALL BE PROVIDED ON TOP OF THE PLANTING SOIL. AN ACCEPTABLE MULCH LAYER SHALL INCLUDE SHREDDED HARDWOOD OR SHREDDED WOOD CHIPS OR OTHER SIMILAR PRODUCT APPROVED BY THE DISTRICT OF COLUMBIA DEPARTMENT OF HEALTH SOIL RESOURCES DIVISION.

OF THE APPROVED MULCH PRODUCTS, ALL MUST BE WELL AGED, UNIFORM IN COLOR, AND FREE OF FOREIGN MATERIAL INCLUDING PLANT MATERIAL. WELL AGED MULCH IS DEFINED AS MULCH THAT HAS BEEN STOCKPILED OR STORED FOR AT LEAST TWELVE (12) MONTHS.

**C. SAND SPECIFICATIONS**

THE SAND SHALL BE FREE OF DELETERIOUS MATERIALS AND ROCK GREATER THAN 1 INCH IN DIAMETER.

**D. COMPACTION**

SOIL SHALL BE PLACED IN LIFTS OF LESS THAN 18 INCHES AND LIGHTLY COMPACTED (MINIMAL COMPACTIVE EFFORT) BY TAMPING WITH A BUCKET FROM A DOZER OR BACKHOE.

**TABLE B.3.2. MATERIALS SPECIFICATIONS FOR BIORETENTION**

MATERIAL	SPECIFICATION	SIZE	NOTES
PLANT SOIL: 24" MIN [18" MIN FOR SMALL SCALE PROJECT]	85-88% SAND 8-12% SOIL FINES 1-5% ORGANIC MATTERS	N/A	24" MIN (18" MIN FOR SMALL SCALE PRACTICES); USE ORGANIC MATTERS IN THE FORM OF AGED COMPOST OR WOOD CHIPS.
MULCH	SHREDDED HARDWOOD	N/A	LAY A 2" TO 3" LAYER ON THE SURFACE OF FILTER BED.
STONE DIAPHRAGM/PEA GRAVEL	PEA GRAVEL: ASTM-D-448	PEA GRAVEL: NO. 6	DOUBLE WASH PEA GRAVEL; AT LEAST 9" DEEP.
GEOTEXTILE	WOVEN MONOFILAMENT POLYPROPYLENE	FLOW RATE ≥ 100 GPM/SQ.FT. (ASTM D4491)	SUBMIT PRODUCT SPECIFICATIONS
UNDERDRAIN GRAVEL	1" DIAMETER STONE (ASTM-D-448)	AASHTO #57 OR 67 STONE	DOUBLE WASHED
UNDERDRAIN PIPING	N/A	4" RIGID SCHEDULE 40 PVC OR SDR35	3/8" PERF. @ 6" ON CENTER, 4 HOLES PER ROW; MINIMUM OF 3" OF GRAVEL OVER PIPES; NOT NECESSARY UNDERNEATH PIPES
SAND	AASHTO-M-6 OR ASTM-C33	N/A	SAND SUBSTITUTIONS SUCH AS DIABASE AND GRAYSTONE #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATED OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND

NOTE FOR STORMWATER MANAGEMENT CALCULATION, SEQUENCE OF CONSTRUCTION AND NOTES SEE SHEETS SWM-3, SWM-4 AND SWM-5

**ESD # 7121**

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License No. 21718, Expiration Date: 2017-09-16

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3	SWM-ES	09/29/2016
2	SWM-ES	08/15/2016
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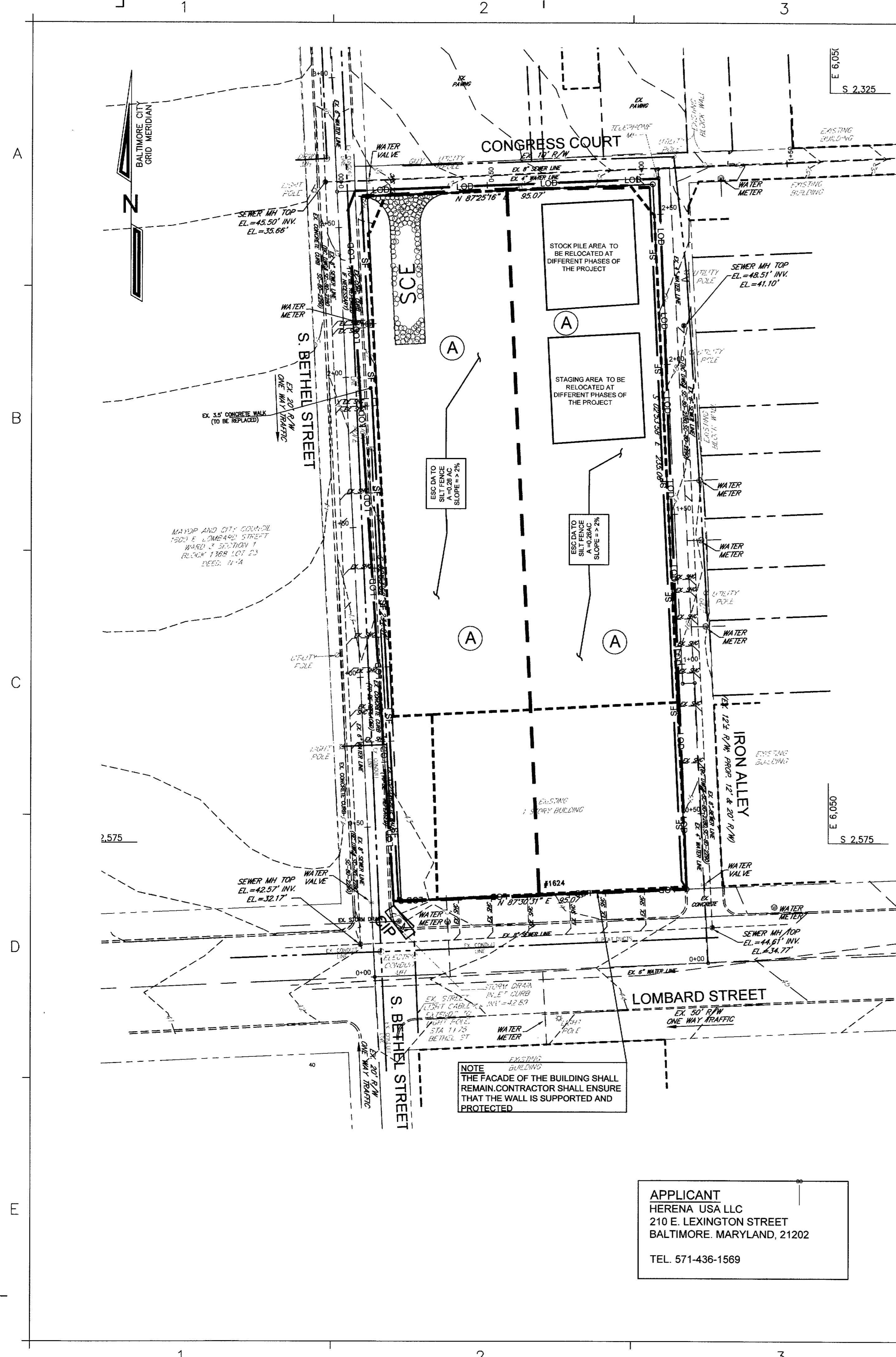


Date: 02/5/2016  
Project # 1501.01  
STORMWATER MANAGEMENT NOTES AND DETAILS

C-2.30

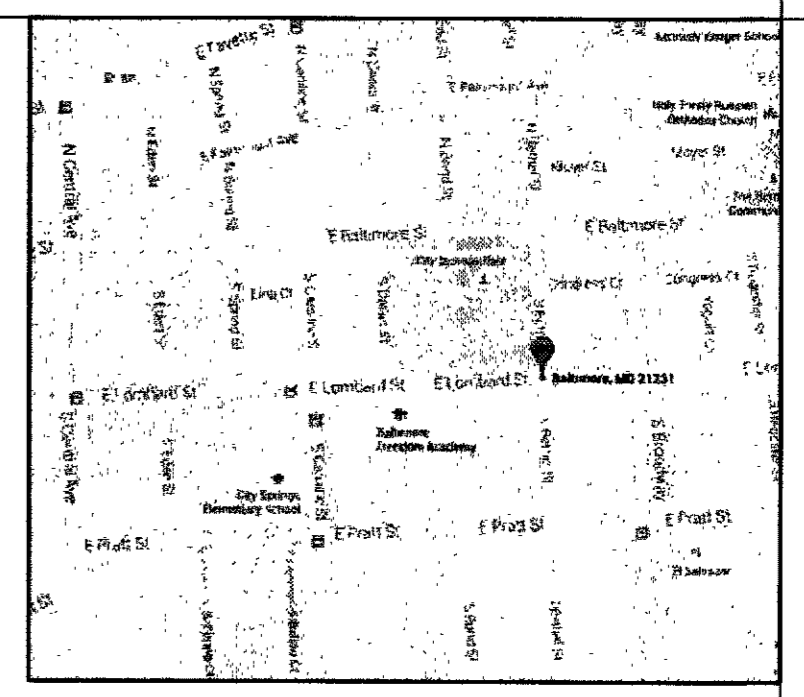




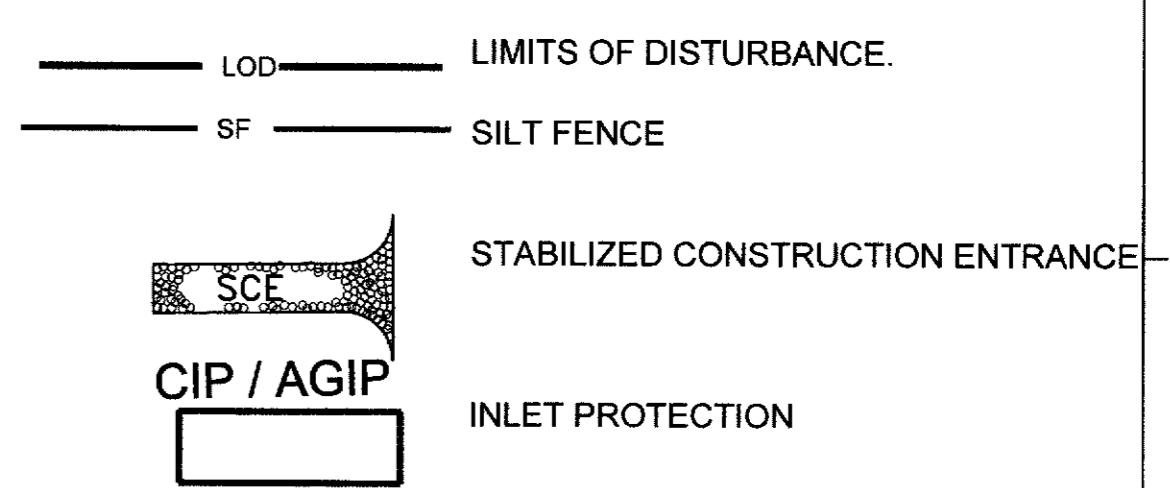


**INITIAL SEQUENCE OF CONSTRUCTION**

- OBTAIN PROPER PERMIT.
- SUBMIT A WRITTEN NOTIFICATION TO: THE DEPARTMENT OF PUBLIC WORKS, OFFICE OF COMPLIANCE AND LABORATORIES: 3001 DRUID PARK DRIVE, ROOM 228, BALTIMORE, MD 21215, PHONE NUMBER, 410-396-0732, FAX 410-523-9047, DPW.ESCINSPECTIONS@BALTIMORECITY.GOV, AT LEAST 72 HOURS PRIOR TO START OF CONSTRUCTION STATING:
  - A REQUEST FOR A PRECONSTRUCTION MEETING,
  - WHEN CONTRACTOR INTENDS TO BEGIN CONSTRUCTION,
  - WHEN CONTRACTOR INTENDS TO INSTALL STORMWATER MANAGEMENT FACILITIES,
  - SOURCE OF BORROW MATERIAL,
  - LOCATION OF DISPOSAL AREA OF SITE MATERIAL,
  - CONTRACTOR'S TENTATIVE CLOSING DATE.
- NOTIFY MISS UTILITY AT LEAST 5 DAYS PRIOR TO DOING ANY CONSTRUCTION AT 888-257-7777 TO LOCATE ALL EXISTING UTILITIES.
- WITH WRITTEN PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, INSTALL HEAVY DUTY STABILIZED CONSTRUCTION ENTRANCE(S) WITH MOUNTABLE BERM AND CLEAN OUT RACK.
- INSTALL PERIMETER SILT FENCE, SUPPER SILT FENCE, AT GRADE INLET PROTECTION, AND CURB INLET PROTECTION PER PLAN.
- WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, BEGIN REMOVAL OF EXISTING BUILDING, ROUGH GRADE THE SITE AND TEMPORARILY STABILIZE SITE.



**SEDIMENT CONTROL PLAN LEGEND**



**STABILIZATION SCHEDULE**

AREA	SQUARE FOOTAGE	STABILIZATION TYPE	SEQUENCE #
(A)	22,651 SQ. FT.	TEMP. STONE BASE	6
SEDIMENT CONTROL		TEMPORARY SEED AND MULCH	6

**NOTE:**  
AREA TO BE VEGETATIVELY STABILIZED TO SATISFY THE 377 DAY REQUIREMENT AS PER THE BALTIMORE CITY STANDARD EROSION AND SEDIMENT CONTROL NOTES.

**SEE SHEETS C1.0 AND C2.0 FOR SITE UTILITY LEGENDS**

**ESC CERTIFICATIONS**

**OWNER'S CERTIFICATION**

I/WE DO HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, AND/OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED PLAN AND ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE CERTIFICATION OF ATTENDANCE AT AN APPROVED MARYLAND DEPARTMENT OF THE ENVIRONMENTAL SEDIMENT AND EROSION CONTROL TRAINING PROGRAM PRIOR TO THE BEGINNING OF WORK. THE CITY'S DPW AND DHCD AND MDE WILL BE ALLOWED RIGHT OF ENTRY FOR PERIODIC ON-SITE EVALUATION

Samir Khabra  
 PRINT NAME: Samir Khabra SIGNATURE: [Signature] DATE: 10/4/16  
 ADDRESS: 210 E. LEXINGTON ST. BALTIMORE, MD, 21202 TELEPHONE NUMBER: 571-436-1569

**ENGINEERS CERTIFICATION**

I DO HEREBY CERTIFY THAT THIS PLAN FOR EROSION SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED UPON PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED ON ACCORDANCE WITH THE REQUIREMENTS OF THE BALTIMORE CITY OFFICE OF COMPLIANCE AND LABORATORIES

Maria Azevedo  
 PRINT NAME: Maria Azevedo SIGNATURE: [Signature] DATE: 10/4/16  
 ADDRESS: 1705 CHESTER MILL RD SILVER SPRING, MD, 20906 TELEPHONE NUMBER: 240-271-9759

**STOCKPILE NOTE:**

- CONTRACTOR STAGING AREA IS WITHIN THE LIMIT OF DISTURBANCE
- ANY EXCAVATED MATERIAL SHALL BE IMMEDIATELY HAULED OFFSITE.
- STOCKPILE AREA SHALL NOT BE LOCATED IN AN AREA DESIGNATED FOR MICRO-BIORETENTION.

**MAINTENANCE OF SEDIMENT CONTROL:**

CONTRACTOR SHALL, WITHOUT EXTRA COST TO THE PROJECT, REPAIR AND MAINTAIN EXISTING SEDIMENT CONTROL DEVICES UNTIL ALL AREAS WITHIN LIMITS OF CONSTRUCTION ARE STABILIZED. ALL SEDIMENT CONTROL MEASURES REFERRED TO ON THESE PLANS SHALL BE IN ACCORDANCE WITH THE PUBLICATION ENTITLED "1994 MARYLAND STANDARDS AND SPECIFICATION FOR EROSION AND SEDIMENT CONTROL".

**SITE INFORMATION**

TOTAL AREA OF SITE:	0.51 AC
AREA DISTURBED:	0.54 AC
IMPERVIOUS AREA:	0.50 AC
TOTAL CUT:	671 CY
TOTAL FILL:	340 CY

**NOTE:**  
THE ABOVE QUANTITIES ARE FOR PERMITTING PURPOSES ONLY. CONTRACTOR SHALL CALCULATE HIS OWN QUANTITIES FOR BIDDING PURPOSE.

APPLICANT  
 HERENA USA LLC  
 210 E. LEXINGTON STREET  
 BALTIMORE, MARYLAND, 21202  
 TEL. 571-436-1569

**ESD # 7121**

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 License No. 21718, Expiration Date: 2017-09-16

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1	BID-SET	02/5/2016

REVISION HISTORY

Professional Engineer Seal  
 STATE OF MARYLAND  
 PROFESSIONAL ENGINEER  
 21718  
 09/12/17

Date: 02/5/2016  
 Project # 1501.01  
**INITIAL EROSION AND SEDIMENT CONTROL PLAN**

C-3.00



(434)280-1292  
fremelisso.ftdcd@gmail.com

Civil / Structural



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Silver Spring, MD 20906

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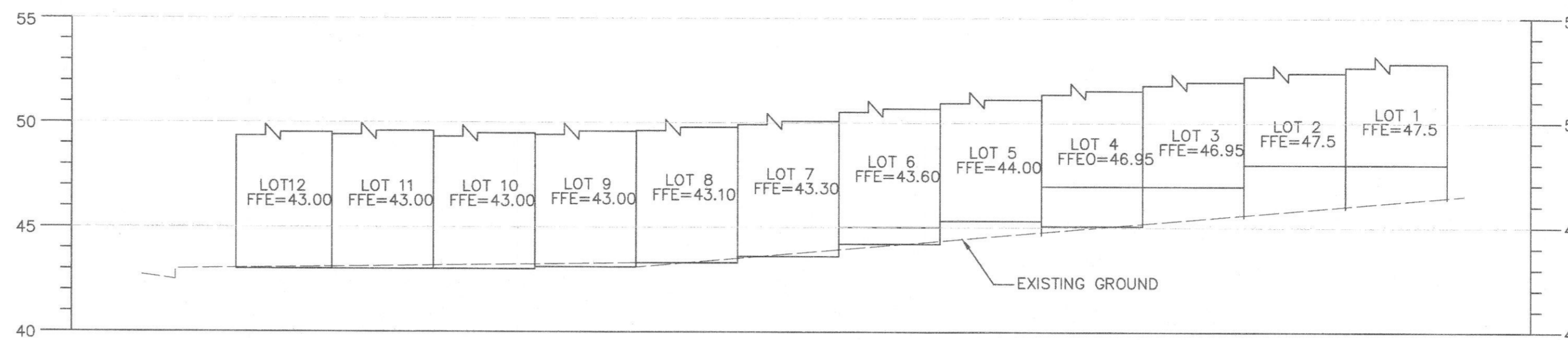


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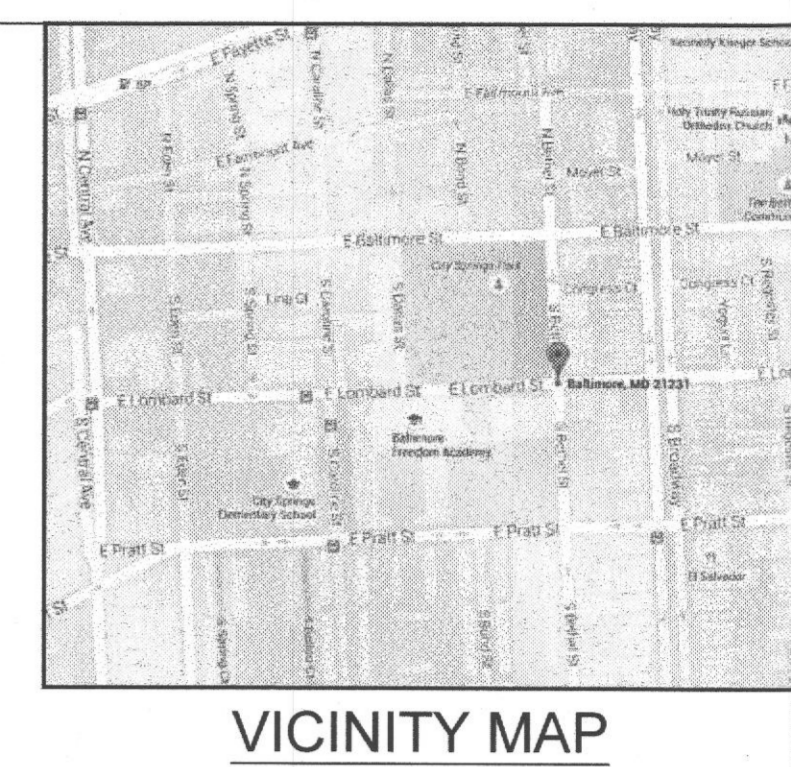
Project # 1501.01

FINAL EROSION AND  
SEDIMENT CONTROL  
PLAN

C-3.10



**SECTION AA**  
SCALE: H: 1" = 20'  
V: 1" = 5'



**VICINITY MAP**

**PAVEMENT LEGEND**

	CONCRETE PAVEMENT
	ASPHALT PAVEMENT
	BRICK PAVERS
	MILL AND RESURFACE

**SEDIMENT CONTROL PLAN LEGEND**

	LOD	LIMITS OF DISTURBANCE.
	SF	SILT FENCE
	SCE	STABILIZED CONSTRUCTION ENTRANCE
	CIP / AGIP	INLET PROTECTION

**FINAL SEQUENCE OF CONSTRUCTION**

1. WITH WRITTEN PERMISSION OF THE SEDIMENT CONTROL INSPECTOR PROCEED WITH THE FINAL PHASE AND INSTALL HEAVY DUTY STABILIZED CONSTRUCTION ENTRANCE(S) WITH MOUNTABLE BERM AND CLEAN OUT RACK AT THE LOCATION SHOWN ON THE PLAN
2. INSTALL PERIMETER SILT FENCE, SUPPER SILT FENCE, AT GRADE INLET PROTECTION, AND CURB INLET PROTECTION PER PLAN.
3. BEGIN CONSTRUCTION OF THE BUILDINGS AND PROCEED TO COMPLETION
4. WITH WRITTEN PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, BEGIN REMOVAL OF EXISTING PAVEMENTS FOR THE INSTALLATIONS OF UTILITIES, TEMPORARILY STABILIZE SITE. INSTALL PROPOSED WATER AND SEWER CONNECTIONS AND OTHER UTILITIES PER PLANS; PLACE TRENCH REPAIR PAVING UPON COMPLETION OF CONNECTIONS.
5. INSTALL THE STORMDRAIN PIPE FROM i-1 TO THE POINT OF CONNECTION. STABILIZE S AND REPAIR PAVING AFTER COMPLETION.
6. FINE GRADE THE REMAINDER OF THE SITE AND INSTALL CURBS, SIDEWALKS AND LANDSCAPE AREA WITHIN THE PROPOSED COURT YARD. STABILIZE THE SURROUNDING SITE.
7. UPON STABILIZATION OF THE SURROUNDING AREA INSTALL PROPOSED STORMWATER MANAGEMENT FACILITIES (MICRO BIORETENTIONS). REFER TO STORMWATER MANAGEMENT SEQUENCE OF CONSTRUCTION ON SHEET C2.31.
8. REMOVE EXISTING BETHEL STREET AND IRON ALLEY PAVEMENT FOR THE PROPOSED RECONSTRUCTION PER PLANS.
9. INSTALL PAVING SURFACES FOR
10. UPON COMPLETING PAVEMENT PLACEMENT AND BUILDING CONSTRUCTION, PERMANENT STABILIZED ALL DISTURBED AREAS.
11. REMOVE SEDIMENT CONTROL DEVICES AFTER OBTAINING WRITTEN PERMISSION FORM THE BALTIMORE CITY SEDIMENT CONTROL INSPECTOR AND STABILIZE AS SPECIFIED BY THE APPROVED SEDIMENT CONTROL PLAN FOR THE PROJECT SITE.

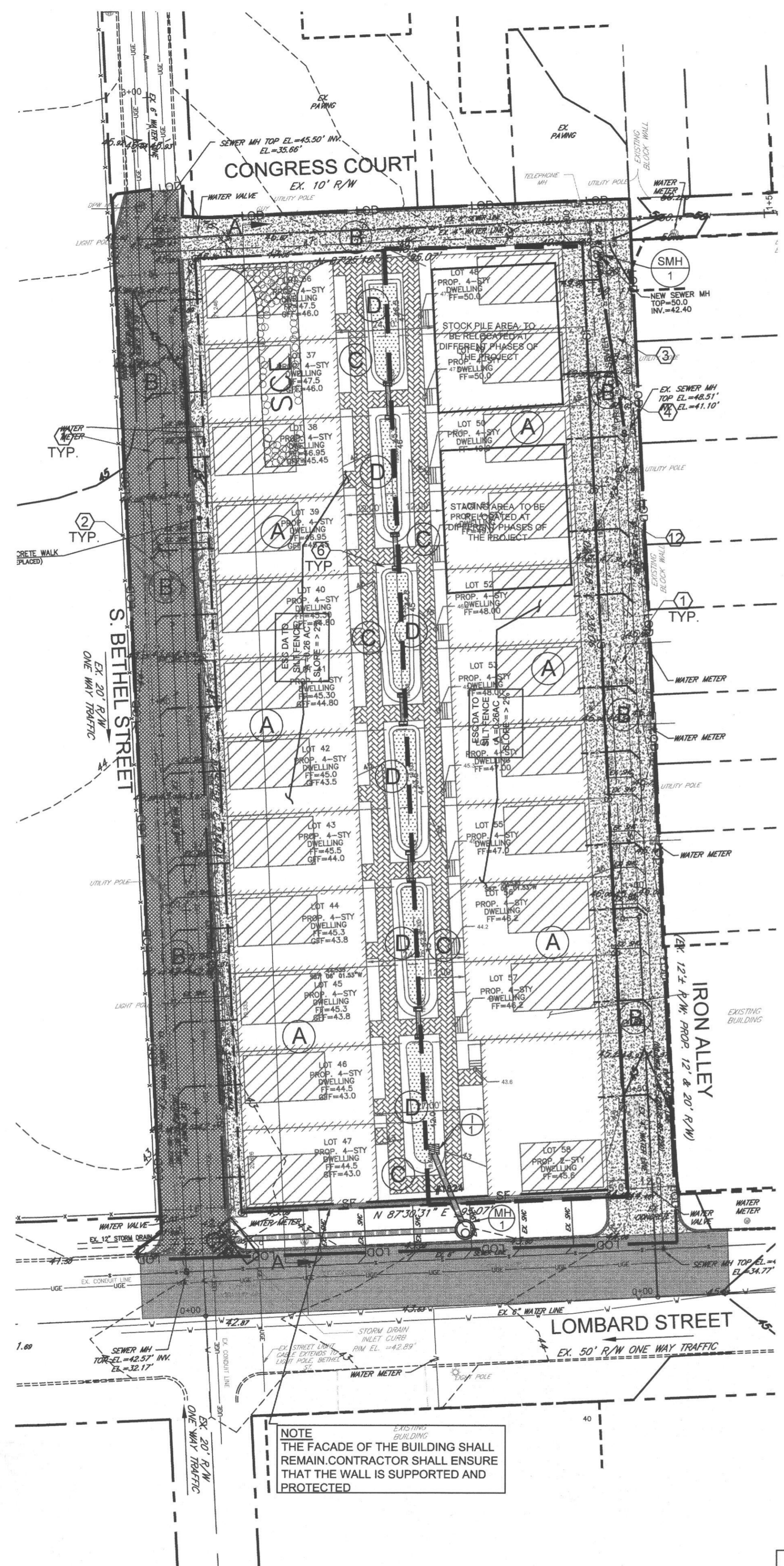
**SEE SHEETS C1.0 AND C2.0 FOR SITE UTILITY LEGENDS**

**STOCKPILE NOTE:**

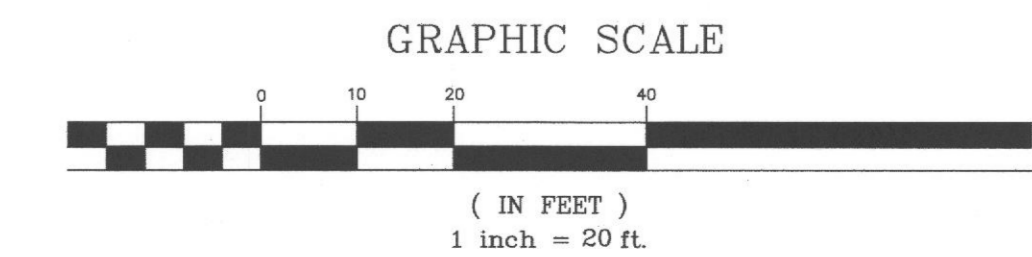
1. CONTRACTOR STAGING AREA IS WITHIN THE LIMIT OF DISTURBANCE
2. ANY EXCAVATED MATERIAL SHALL BE IMMEDIATELY HAULED OFFSITE.
3. STOCKPILE AREA SHALL NOT BE LOCATED IN AN AREA DESIGNATED FOR MICRO-BIORETENTION.

**MAINTENANCE OF SEDIMENT CONTROL:**

CONTRACTOR SHALL, WITHOUT EXTRA COST TO THE PROJECT, REPAIR AND MAINTAIN EXISTING SEDIMENT CONTROL DEVICES UNTIL ALL AREAS WITHIN LIMITS OF CONSTRUCTION ARE STABILIZED. ALL SEDIMENT CONTROL MEASURES REFERRED TO ON THESE PLANS SHALL BE IN ACCORDANCE WITH THE PUBLICATION ENTITLED "1994 MARYLAND STANDARDS AND SPECIFICATION FOR EROSION AND SEDIMENT CONTROL".



NOTE  
THE FACADE OF THE BUILDING SHALL REMAIN. CONTRACTOR SHALL ENSURE THAT THE WALL IS SUPPORTED AND PROTECTED



APPLICANT  
HERENA USA LLC  
210 E. LEXINGTON STREET  
BALTIMORE, MARYLAND, 21202  
TEL. 571 436-1569

**ESD # 7121**

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
License No. 21718, Expiration Date: 2017-09-16

REV	DESCRIPTION	DATE
4	SWM-ES	05/20/2017
3	SWM-ES	09/29/2016
2	SWM-ES	08/15/2016
1	BID-SET	02/5/2016

REVISION HISTORY



Date: 02/5/2016  
 Project # 1501.01  
**EROSION AND  
 SEDIMENT CONTROL  
 DETAIL-1**

C-3.20

**SEDIMENT CONTROL STANDARD NOTES**

- THE CONTRACTOR WILL COMPLY WITH ALL REQUIREMENTS OF SEDIMENT AND EROSION CONTROL AS SET FORTH IN THE MARYLAND SEDIMENT AND EROSION MANUAL AND BALTIMORE CITY CODE ARTICLE 7.
- SUBMIT A WRITTEN NOTIFICATION TO: THE DEPARTMENT OF PUBLIC WORKS, OFFICE OF COMPLIANCE AND LABORATORIES: 3001 DRUID PARK DRIVE, ROOM 228, BALTIMORE, MD 21215, PHONE NUMBER, 410-396-0732, FAX 410-523-9047, DPW.ESCINSPCTIONS@BALTIMORECITY.GOV, AT LEAST 72 HOURS PRIOR TO START OF CONSTRUCTION STATING:
  - A REQUEST FOR A PRECONSTRUCTION MEETING,
  - WHEN CONTRACTOR INTENDS TO BEGIN CONSTRUCTION,
  - WHEN CONTRACTOR INTENDS TO INSTALL STORMWATER MANAGEMENT FACILITIES,
  - SOURCE OF BORROW MATERIAL,
  - LOCATION OF DISPOSAL AREA OF SITE MATERIAL,
  - CONTRACTOR'S TENTATIVE CLOSING DATE.
- INITIAL DISTURBANCE WILL BE LIMITED TO THAT NECESSARY TO GAIN ENTRANCE TO THE SITE AND INSTALL NECESSARY SEDIMENT CONTROLS AS PER THE APPROVED PLANS.
- ALL SEDIMENT CONTROLS AND CRITICAL SLOPES MUST BE STABILIZED WITHIN THREE (3) CALENDAR DAYS. ALL OTHER INACTIVE DISTURBED AREAS ON THE PROJECT SITE MUST BE STABILIZED WITHIN SEVEN (7) CALENDAR DAYS.
- ALL EXCAVATED MATERIAL SHALL BE PLACED ON THE HIGH SIDE WHENEVER POSSIBLE AND CONFINED TO AN AREA WHERE IT WILL NOT BE OBSTRUCT THE NORMAL COURSE OF DRAINAGE.
- PUMPING OF SEDIMENT LADEN WATER WILL NOT BE ALLOWED UNLESS IT IS FILTERED BY WAY OF AN APPROVED SEDIMENT TRAPPING DEVICE.
- CONTINUOUS INSPECTION AND MAINTENANCE OF ALL SEDIMENT CONTROL DEVICES IS MANDATORY.
- ANY SEDIMENT CONTROL DEVICES DISTURBED DURING UTILITY CONSTRUCTION MUST BE RESTORED IMMEDIATELY.
- ALL POINTS OF INGRESS AND EGRESS SHALL BE PROTECTED TO MINIMIZE TRACKING OF MUD ON TO PUBLIC RIGHT-OF-WAYS.
- ANY EARTH, GRAVEL, AND/OR OTHER MATERIAL TRACKED, SPILLED OR WASHED ON TO ADJACENT ROADS MUST BE IMMEDIATELY REMOVED AND DISPOSED OF IN A PROPER MANNER. NO FLUSHING WILL BE PERMITTED. ALL MATERIAL MUST BE REMOVED BY MEANS OF SHOVELING AND SWEEPING.
- ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 5,000 SQ. FT., THE CONTRACTOR SHALL HAVE A BALTIMORE CITY EROSION AND SEDIMENT CONTROL INSPECTOR INSPECT AND APPROVE THE WORK COMPLETED AT THE STAGES OF CONSTRUCTION SPECIFIED BELOW:
  - UPON COMPLETION OF THE INSTALLATION OF THE PERIMETER SEDIMENT CONTROLS;
  - DURING ALL GRADING AND BUILDING OPERATIONS;
  - UPON FINAL STABILIZATION OF THE ENTIRE SITE PRIOR TO REMOVAL OF THE SEDIMENT CONTROLS
- THE CONTRACTOR SHALL NOT DEVIATE FROM THE APPROVED SEDIMENT AND EROSION CONTROL PLAN WITHOUT FIRST RECEIVING APPROVAL FROM THE OFFICE OF COMPLIANCE AND LABORATORIES. VARIATIONS TO THE ORIGINAL PLAN MUST BE SUBMITTED IN WRITING WITH ALL PROPOSED MODIFICATIONS STILL BEING HIGHLIGHTED. SUBSTANTIAL CHANGES WILL NECESSITATE AMENDMENT OF THE GRADING /BUILDING PERMIT.

- B. Incremental Stabilization - Fill Slopes**
- Construct and stabilize fill slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all slopes as the work progresses.
  - Stabilize slopes immediately when the vertical height of a lift reaches 15 feet, or when the grading operation ceases as prescribed in the plans.
  - At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.
  - Construction sequence example (Refer to Figure B.2):
    - Construct and stabilize all temporary swales or dikes that will be used to divert runoff around the fill. Construct silt fence on low side of fill unless other methods shown on the plans address this area.
    - At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.
    - Place Phase 1 fill, prepare seedbed, and stabilize.
    - Place Phase 2 fill, prepare seedbed, and stabilize.
    - Place final phase fill, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.

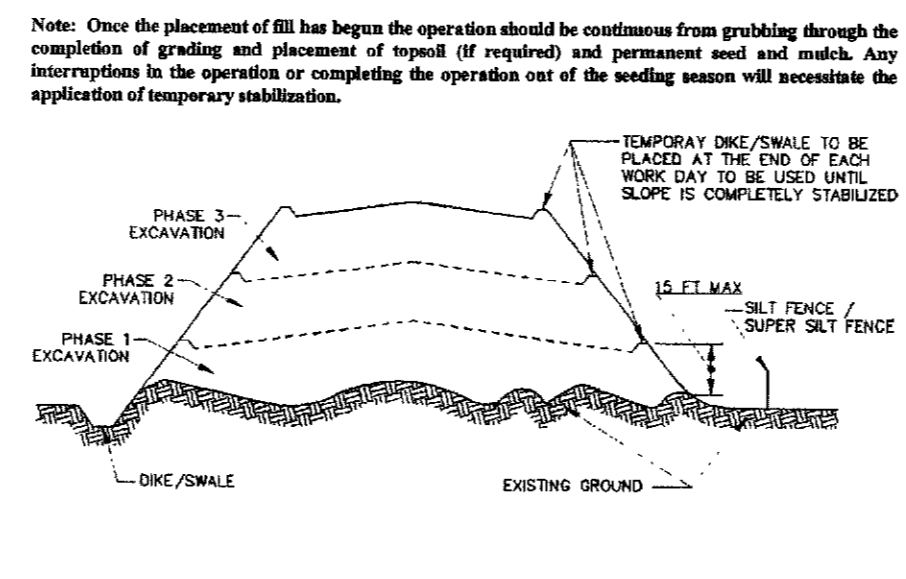


Figure B.2: Incremental Stabilization - Fill

- B-1. STANDARDS AND SPECIFICATIONS FOR INCREMENTAL STABILIZATION**
- Definition**  
 Establishment of vegetative cover on cut and fill slopes.
- Purpose**  
 To provide timely vegetative cover on cut and fill slopes as work progresses.
- Conditions Where Practice Applies**  
 Any cut or fill slope greater than 15 feet in height. This practice also applies to stockpiles.
- Criteria**
- Incremental Stabilization - Cut Slopes**
    - Excavate and stabilize cut slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all cut slopes as the work progresses.
    - Construction sequence example (Refer to Figure B.1):
      - Construct and stabilize all temporary swales or dikes that will be used to convey runoff around the excavation.
      - Perform Phase 1 excavation, prepare seedbed, and stabilize.
      - Perform Phase 2 excavation, prepare seedbed, and stabilize. Overseed Phase 1 areas as necessary.
      - Perform final phase excavation, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.

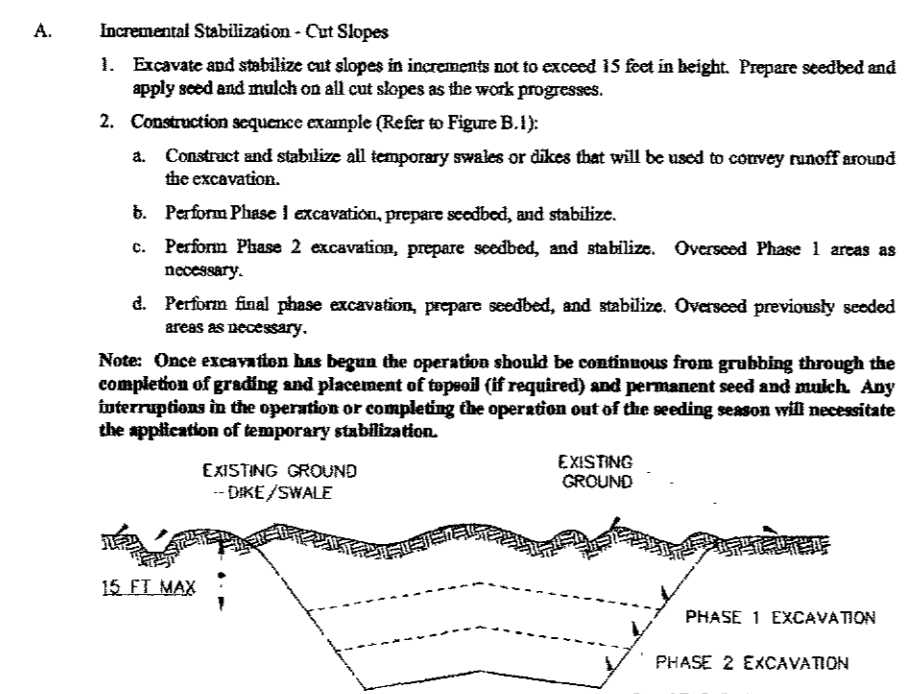


Figure B.1: Incremental Stabilization - Cut

- Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.
  - Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Make lawn areas to smooth the surface, remove large objects like stumps and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seeded preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seeded loosening may be unnecessary on sandy disturbed areas.
- B. Topsoiling**
- Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.
  - Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.
  - Topsoiling is limited to areas having 2:1 or flatter slopes where:
    - The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
    - The soil material is so alkaline that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
    - The original soil to be vegetated contains material toxic to plant growth.
    - The soil is so acidic that treatment with limestone is not feasible.
  - Areas having slopes steeper than 2:1 require special consideration and design.
  - Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
    - Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trim, or other materials larger than 1 1/2 inches in diameter.
    - Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, net sedge, poison ivy, thistle, or others as specified.
    - Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.
  - Topsoil Application
    - Erosion and sediment control practices must be maintained when applying topsoil.
    - Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or sodding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.
    - Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading.

- and seeded preparation.
- C. Soil Amendments (Fertilizer and Lime Specifications)**
- Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
  - Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Material may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.
  - Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroxydical) which contains at least 90 percent total oxidized (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.
  - Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.
  - Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

- Soil Preparation
  - Temporary Stabilization**
    - Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.
    - Apply fertilizer and lime as prescribed on the plans.
    - Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.
  - Permanent Stabilization**
    - A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:
      - Soil pH between 6.0 and 7.0.
      - Soluble salts less than 500 parts per million (ppm).
      - Soil contains less than 40 percent clay but enough fine grained material (greater than 20 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.
      - Soil contains 1.5 percent minimum organic matter by weight.
      - Soil contains sufficient pore space to permit adequate root penetration.
    - Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
    - Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.

**B-1. STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION**

**Definition**  
 Using vegetation as cover to protect exposed soil from erosion.

**Purpose**  
 To promote the establishment of vegetation on exposed soil.

**Conditions Where Practice Applies**  
 On all disturbed areas not stabilized by other methods. This specification is divided into sections on incremental stabilization, soil preparation, soil amendments and topsoiling, seeding and mulching, temporary stabilization, and permanent stabilization.

**Effects on Water Quality and Quantity**  
 Stabilization practices are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and runoff to downstream areas.

Planting vegetation in disturbed areas will have an effect on the water budget, especially on volume and rate of runoff, infiltration, evaporation, transpiration, percolation, and groundwater recharge. Over time, vegetation will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth.

Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone.

Sediment control practices must remain in place during grading, seedbed preparation, seeding, mulching, and vegetative establishment.

**Appropriate Vegetative Establishment**  
 Inspect seeded areas for vegetative establishment and make necessary repairs, replacements, and reseedings within the planting season.

- Adequate vegetative stabilization requires 95 percent groundcover.
- If an area has less than 40 percent groundcover, restabilize following the original recommendations for lime, fertilizer, seedbed preparation, and seeding.
- If an area has between 40 and 94 percent groundcover, over-seed and fertilize using half of the rates originally specified.
- Maintenance fertilizer rates for permanent seeding are shown in Table B.6.

**B-2. STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS**

**Definition**  
 The process of preparing the soils to sustain adequate vegetative stabilization.

**Purpose**  
 To provide a suitable soil medium for vegetative growth.

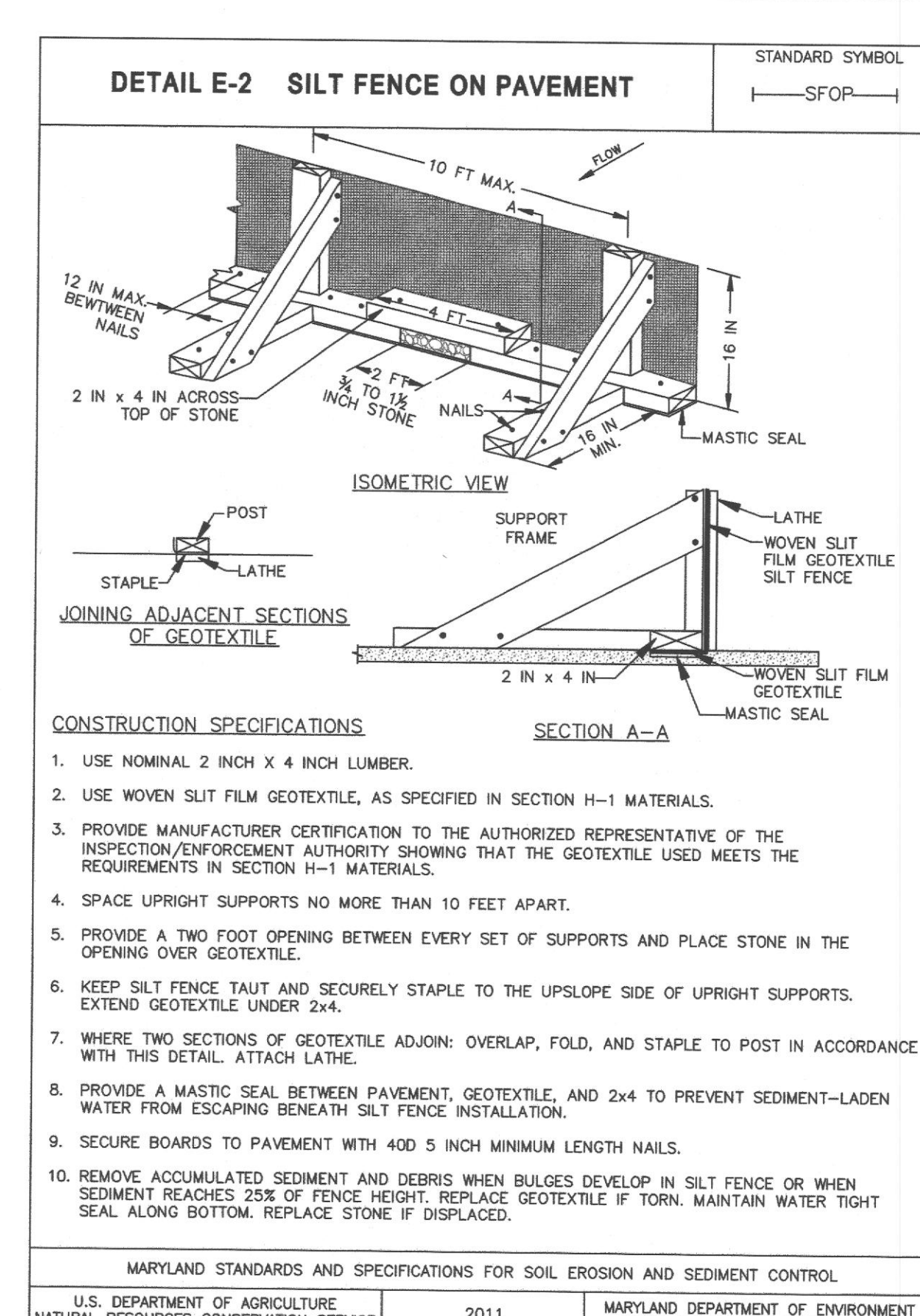
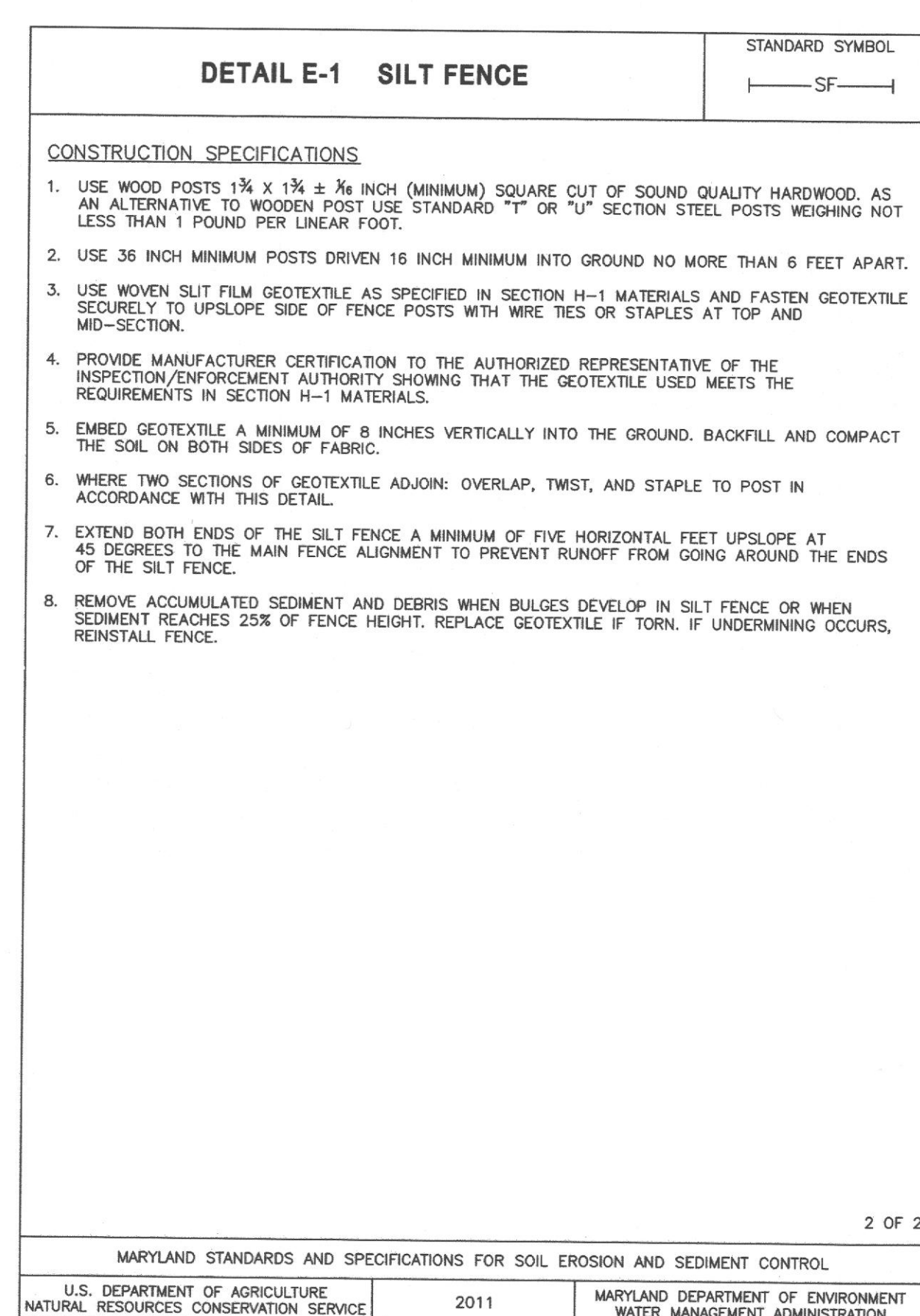
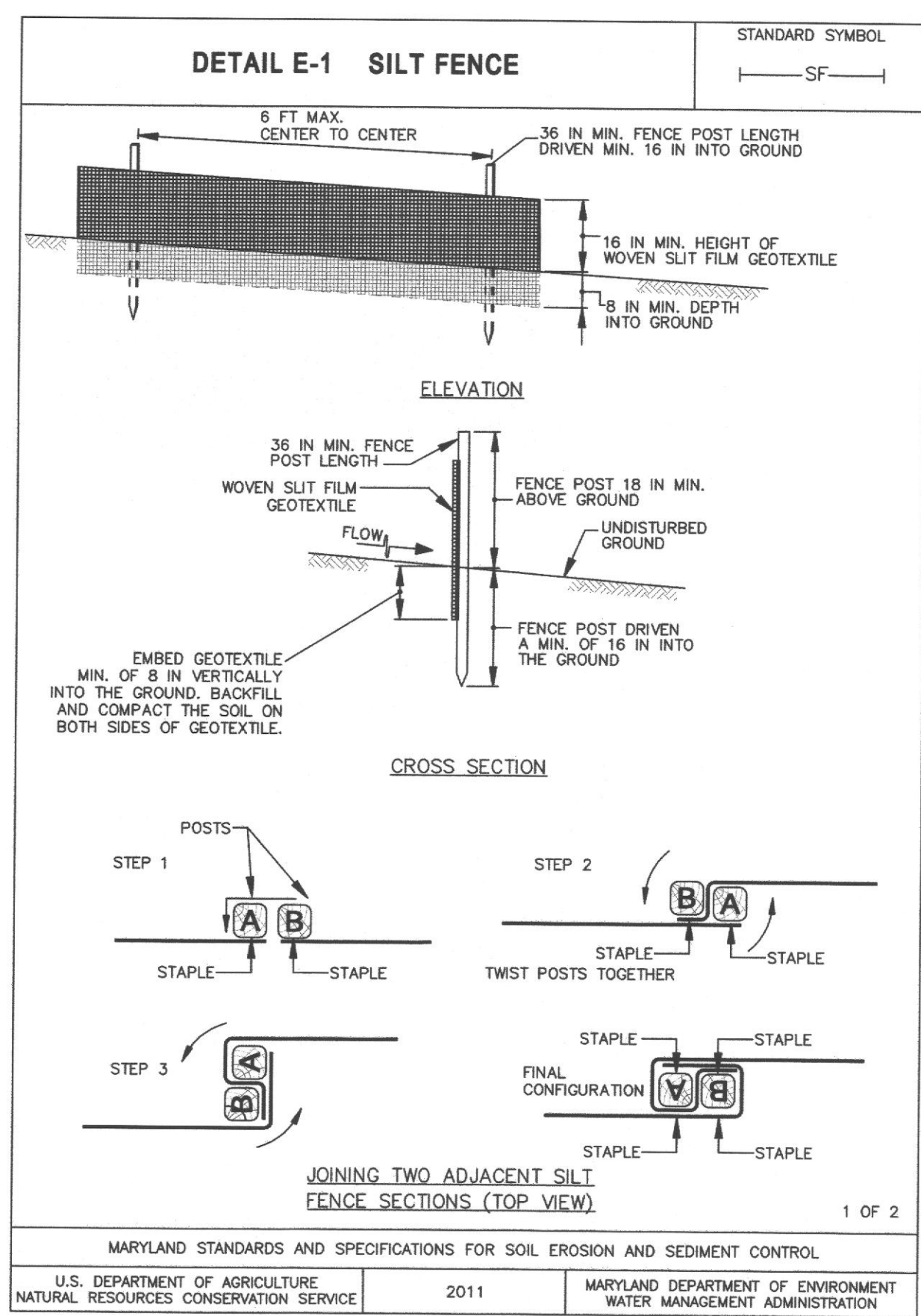
**Conditions Where Practice Applies**  
 Where vegetative stabilization is to be established.

**Criteria**

- Soil Preparation**
  - Temporary Stabilization**
    - Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.
    - Apply fertilizer and lime as prescribed on the plans.
    - Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.
  - Permanent Stabilization**
    - A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:
      - Soil pH between 6.0 and 7.0.
      - Soluble salts less than 500 parts per million (ppm).
      - Soil contains less than 40 percent clay but enough fine grained material (greater than 20 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.
      - Soil contains 1.5 percent minimum organic matter by weight.
      - Soil contains sufficient pore space to permit adequate root penetration.
    - Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
    - Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.

**ESD # 7121**

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
 License No. 21718, Expiration Date: 2017-09-16



**H-5 STANDARDS AND SPECIFICATIONS FOR DUST CONTROL**

**Definition**  
Controlling the suspension of dust particles from construction activities.

**Purpose**  
To prevent blowing and movement of dust from exposed soil surfaces to reduce on and off-site damage including health and traffic hazards.

**Conditions Where Practice Applies**  
Areas subject to dust blowing and movement where on and off-site damage is likely without treatment.

**Specifications**

- Mulches:** See Section B-4-2 Soil Preparation, Topsoiling, and Soil Amendments, Section B-4-3 Seeding and Mulching, and Section B-4-4 Temporary Stabilization. Mulch must be anchored to prevent blowing.
- Vegetative Cover:** See Section B-4-4 Temporary Stabilization.
- Tillage:** Till to roughen surface and bring clods to the surface. Begin plowing on windward side of site. Chisel-type plows spaced about 12 inches apart, spring-toothed harrows, and similar plows are examples of equipment that may produce the desired effect.
- Irrigation:** Sprinkle site with water until the surface is moist. Repeat as needed. The site must not be irrigated to the point that runoff occurs.
- Barriers:** Solid board fences, silt fences, snow fences, burlap fences, straw bales, and similar material can be used to control air currents and soil blowing.
- Chemical Treatment:** Use of chemical treatment requires approval by the appropriate plan review authority.

H.22

**F-3 STANDARDS AND SPECIFICATIONS FOR PORTABLE SEDIMENT TANK**

**Definition**  
A compartmented container consisting of a perforated inner pipe lined with hardware cloth and geotextiles, placed inside a larger pipe. Water is pumped into the inner pipe and discharged from the outer pipe.

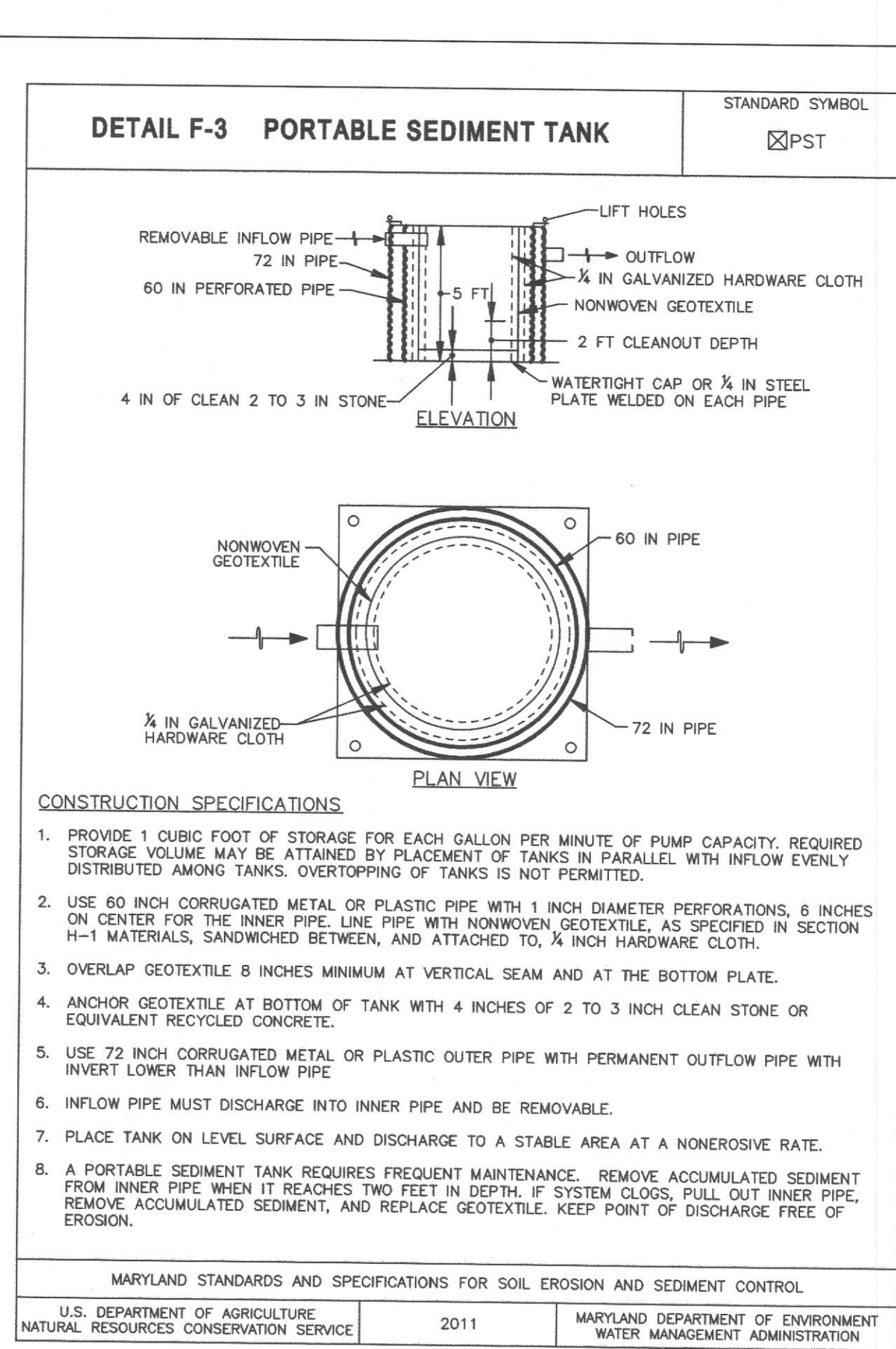
**Purpose**  
To settle and filter sediment-laden water prior to discharge.

**Conditions Where Practice Applies**  
When dewatering is needed in association with excavations, trenches, cofferdams, sediment traps or basins, especially where excavations are deep or space is limited.

**Design Criteria**  
The sediment tank is to be shown on the plan and located for ease of clean-out and disposal of the trapped sediment.

**Maintenance**  
The portable sediment tank requires frequent maintenance. Remove accumulated sediment from inner pipe when it reaches two feet in depth. If the system clogs, the inner pipe needs to be pulled out, accumulated sediment removed, and the geotextile replaced. The point of discharge must be kept free of erosion.

F.6



Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
License No. 21718, Expiration Date: 2017-09-16

**ESD # 7121**

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Baltimore, MD 21212

REV	DESCRIPTION	DATE
4	SWM-ES	05/20/2017
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1	BID-SET	02/5/2016

REVISION HISTORY



Date: 02/5/2016  
Project # 1501.01  
EROSION AND  
SEDIMENT CONTROL;  
DETAIL -2

C-3.30



**B-4.3 STANDARDS AND SPECIFICATIONS**

**FOR SEEDING AND MULCHING**

**Definition**  
The application of seed and mulch to establish vegetative cover.

**Purpose**  
To protect disturbed soils from erosion during and at the end of construction.

**Conditions Where Practice Applies**  
To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

- A. Seeding**
- Specifications**
    - All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to testing by a registered seed laboratory. All seed must have been tested within the 6 months immediately preceding the date of seeding such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.
    - Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.
    - Inoculants: The inoculant for treating legume seed in the seed mixture must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended use when hydroseeding. Note: It is very important to keep inoculants as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective.
    - Soil or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min) to permit degradation of phytotoxic materials.
  - Application**
    - Dry Seeding:** This includes use of conventional drop or broadcast spreaders.
      - Inoculants seed into the soil at the rate specified on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or otherwise specified by the species. Inoculants must not be used later than the date indicated on the container.
      - Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact.

B.15

- Drill or Cultivator Seeding:** Mechanized seeders that apply seed and cover seed with soil.
  - Cultivator seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.
  - Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
- Hydroseeding:** Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).
  - If fertilizer is being applied at the time of seeding, the application rate should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P<sub>2</sub>O<sub>5</sub> (phosphorus), 200 pounds per acre; K<sub>2</sub>O (potassium), 200 pounds per acre.
  - Lime: Use only ground agricultural limestone (up to 3 tons per acre) may be applied by hydroseeding. Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
  - Mix seed and fertilizer on the soil and immediately and without interruption.
  - When hydroseeding do not incorporate seed into the soil.

B.16

- Application**
  - Apply mulch to all seeded areas immediately after seeding.
  - When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre in a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch seeding tool, increase the application rate to 2.5 tons per acre.
  - Wood cellulose fiber seed and mulch must be applied at a seed dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
- Askerding**
  - Perform mulch seeding immediately following application of mulch to minimize loss by wind or water. This may be done by use of the following methods (listed by preference), depending upon the size of the area and erosion hazard:
    - A mulch seeding tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to faster slopes where equipment can operate safely. If used on sloping land, this practice should follow the contour.
    - Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
    - Synthetic binders such as Acrylic GEL (Agro-Tack, DCA-70, Permac-Terra Tack II, Terra Tack AR, or other approved equal) may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind causes mulch, such as in valleys and on crests of banks. The use of asphalt binders is strictly prohibited.
    - Lightweight plastic netting may be applied over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3,000 feet long.

B.17

**B-4.4 STANDARDS AND SPECIFICATIONS**

**FOR TEMPORARY STABILIZATION**

**Definition**  
To stabilize disturbed soils with vegetation for 6 to 12 months.

**Purpose**  
To use fast growing vegetation that provides cover on disturbed soils.

**Conditions Where Practice Applies**  
Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

- Criteria**
- Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If the Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan.
  - For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.
  - When stabilization is required outside of a seeding window, apply seed and mulch or straw mulch alone as prescribed in Section B-4.3.A.1.3 and maintain until the next seeding window.

**Temporary Seeding Summary**

No.	Hardiness Zone (from Figure B.3):		Seeding Date	Seeding Depth	Fertilizer Rate (16-20-20)	Lime Rate
	Species	Application Rate (lb/acre)				
1	Annual Ryegrass	40	3/2 - 5/31	0.5		
	Timothy	96	6/1 - 9/30	1.0	436 lb/acre	2 tons/acre
	Oats	72	3/2 - 5/31	1.0	(10 lb/1000 sf)	(90 lb/1000 sf)
	Wheat	120	3/2 - 5/31	1.0		

B.18

rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass/Cultivar Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with seed ranging from 10 to 35 percent of the total mixture by weight.

- Fall Fescue/Kentucky Bluegrass: Full Sun Mixture:** For use in drought prone areas and/or for areas receiving low to medium management. Full sun to medium shade. Recommended mixture including Certified Full Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 10 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.
- Kentucky Bluegrass/Fine Fescue: Shade Mixture:** For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf areas. Mixture including Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 15 to 20 pounds per 1000 square feet.

**Notes:**  
Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland".  
Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic base.

**Ideal Times of Seeding for Turf Grass Mixtures**  
**Eastern MD:** March 15 to June 1, August 1 to October 1 (Hardiness Zone: 5b, 6a)  
**Central MD:** March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b)  
**Southern MD, Eastern Shore:** March 1 to May 15, August 15 to October 15 (Hardiness Zone: 7a, 7b)

- Turf areas to receive seed by diking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1/2 inch in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.
- If soil moisture is deficient, apply new seedings with adequate water for plant growth (1 to 1 inch every 3 to 4 days depending on soil texture) until they are finally established. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

B.22

**Permanent Seeding Summary**

No.	Species	Application Rate (lb/acre)	Seeding Depth	Fertilizer Rate (16-20-20)			Lime Rate
				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	
1	Swainson	275 - 420	1/2 - 3/4 in.	45 pounds per acre	90 lb/acre (2 lb/1000 sf)	90 lb/acre (2 lb/1000 sf)	2 tons/acre (90 lb/1000 sf)
	Downing	275 - 420	1/2 - 3/4 in.	45 pounds per acre	90 lb/acre (2 lb/1000 sf)	90 lb/acre (2 lb/1000 sf)	2 tons/acre (90 lb/1000 sf)
	Walt	275 - 420	1/2 - 3/4 in.	45 pounds per acre	90 lb/acre (2 lb/1000 sf)	90 lb/acre (2 lb/1000 sf)	2 tons/acre (90 lb/1000 sf)
	Walt	275 - 420	1/2 - 3/4 in.	45 pounds per acre	90 lb/acre (2 lb/1000 sf)	90 lb/acre (2 lb/1000 sf)	2 tons/acre (90 lb/1000 sf)

B.23

- Sod Maintenance**
  - In the absence of adequate rainfall, water daily during the first week or so often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water soil during the heat of the day to prevent wilting.
  - After the first week, soil watering is required as necessary to maintain adequate moisture content.
  - Do not mow until the sod is firmly rooted. No more than 1/2 of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless otherwise specified.

B.24

**B-4.5 STANDARDS AND SPECIFICATIONS**

**FOR STOCKPILE AREA**

**Definition**  
A mound or pile of soil protected by appropriately designed erosion and sediment control measures.

**Purpose**  
To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns.

- Conditions Where Practice Applies**  
Stockpile areas are utilized when it is necessary to salvage and store soil for later use.
- Criteria**
- The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.
  - The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in accordance with Section B-3 Land Grading.
  - Rainoff from the stockpile area must drain to a suitable sediment control practice.
  - Access the stockpile area from the upgrade side.
  - Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner.
  - Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment control practice must be used to intercept the discharge.
  - Stockpiles must be stabilized in accordance with the 3:1 day stabilization requirement as well as Standard B-4.1 Incremental Stabilization and Standard B-4.4 Temporary Stabilization.
  - If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to prevent voids which would cause air drying of the stockpile.

B.43

**B-4.6 STANDARDS AND SPECIFICATIONS**

**FOR PERMANENT STABILIZATION**

**Definition**  
To stabilize disturbed soils with permanent vegetation.

**Purpose**  
To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.

**Conditions Where Practice Applies**  
Exposed soils where ground cover is needed for 6 months or more.

- Criteria**
- Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site conditions or purpose listed on Table B.3. Enter selected mixtures, application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.
  - Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.
  - For sites having disturbed areas over 5 acres, use and show the rates recommended by the soil testing agency.
  - For areas requiring low maintenance, apply area form fertilizer (44-0-0) at 5 1/2 pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary.

B.21

Architect



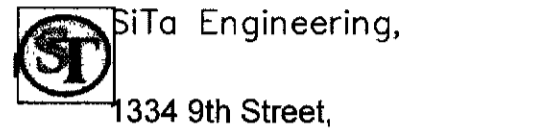
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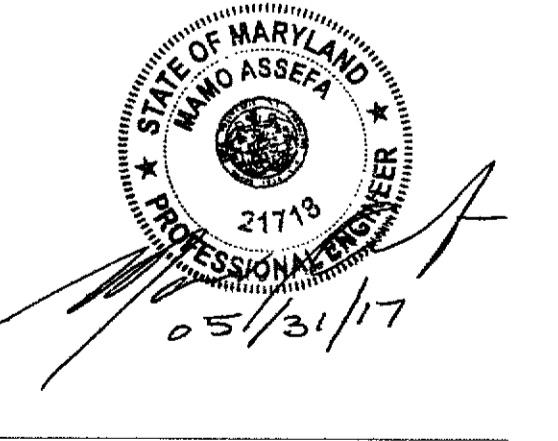
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REV	DESCRIPTION	DATE
4	SWM-ES	05/20/2017
3	SWM-ES	09/29/2016
2	SWM-ES	08/15/2016
1	BID-SET	02/5/2016

REVISION HISTORY



Professional Engineer  
MARIO ASSEFA  
No. 21718  
State of Maryland

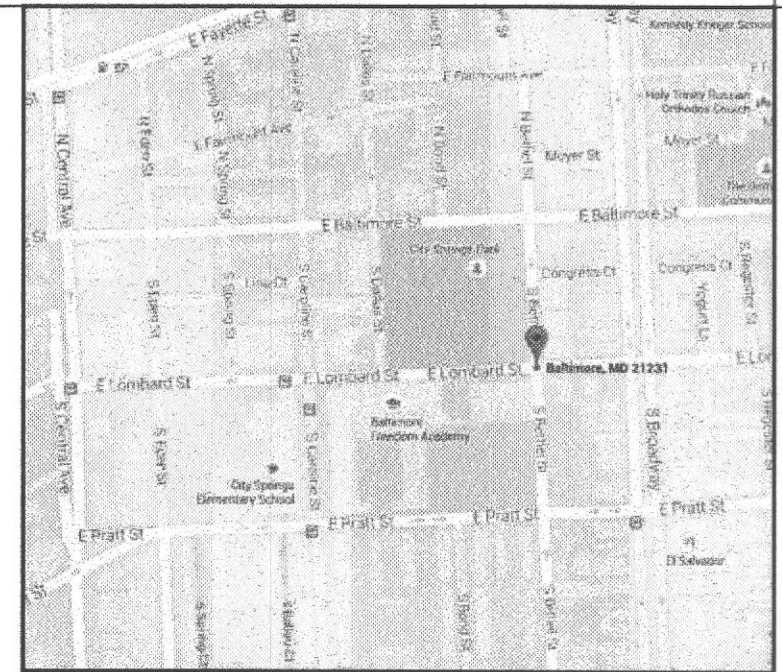
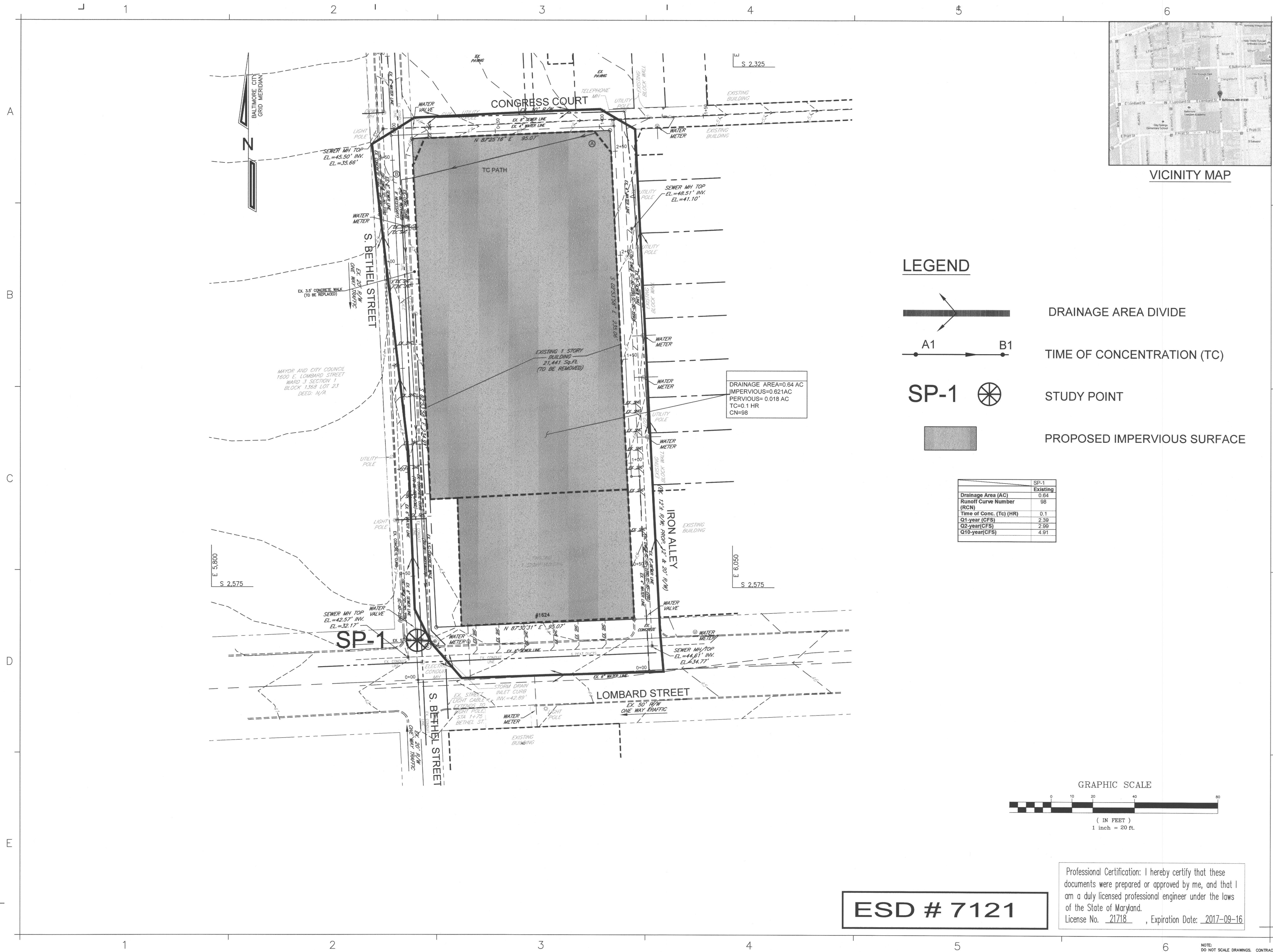
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**EROSION AND SEDIMENT CONTROL DETAIL - 4**

C-3.50

**ESD # 7121**

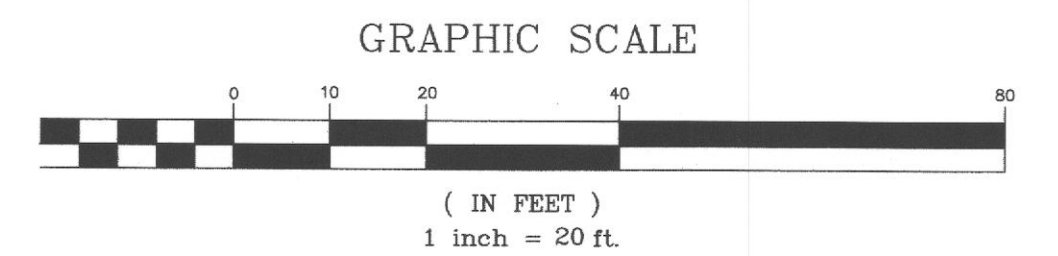
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**LEGEND**

- DRAINAGE AREA DIVIDE
- TIME OF CONCENTRATION (TC)
- SP-1 STUDY POINT
- PROPOSED IMPERVIOUS SURFACE

	SP-1	Existing
Drainage Area (AC)	0.64	0.64
Runoff Curve Number (RCN)	98	98
Time of Conc. (Tc) (HR)	0.1	0.1
Q1-year (CFS)	2.39	2.39
Q2-year (CFS)	2.99	2.99
Q10-year (CFS)	4.91	4.91



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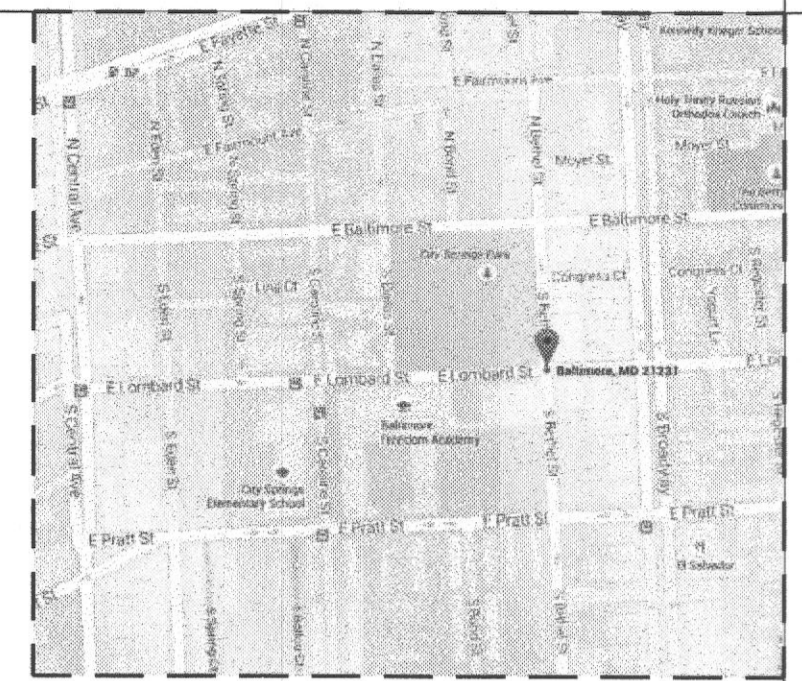
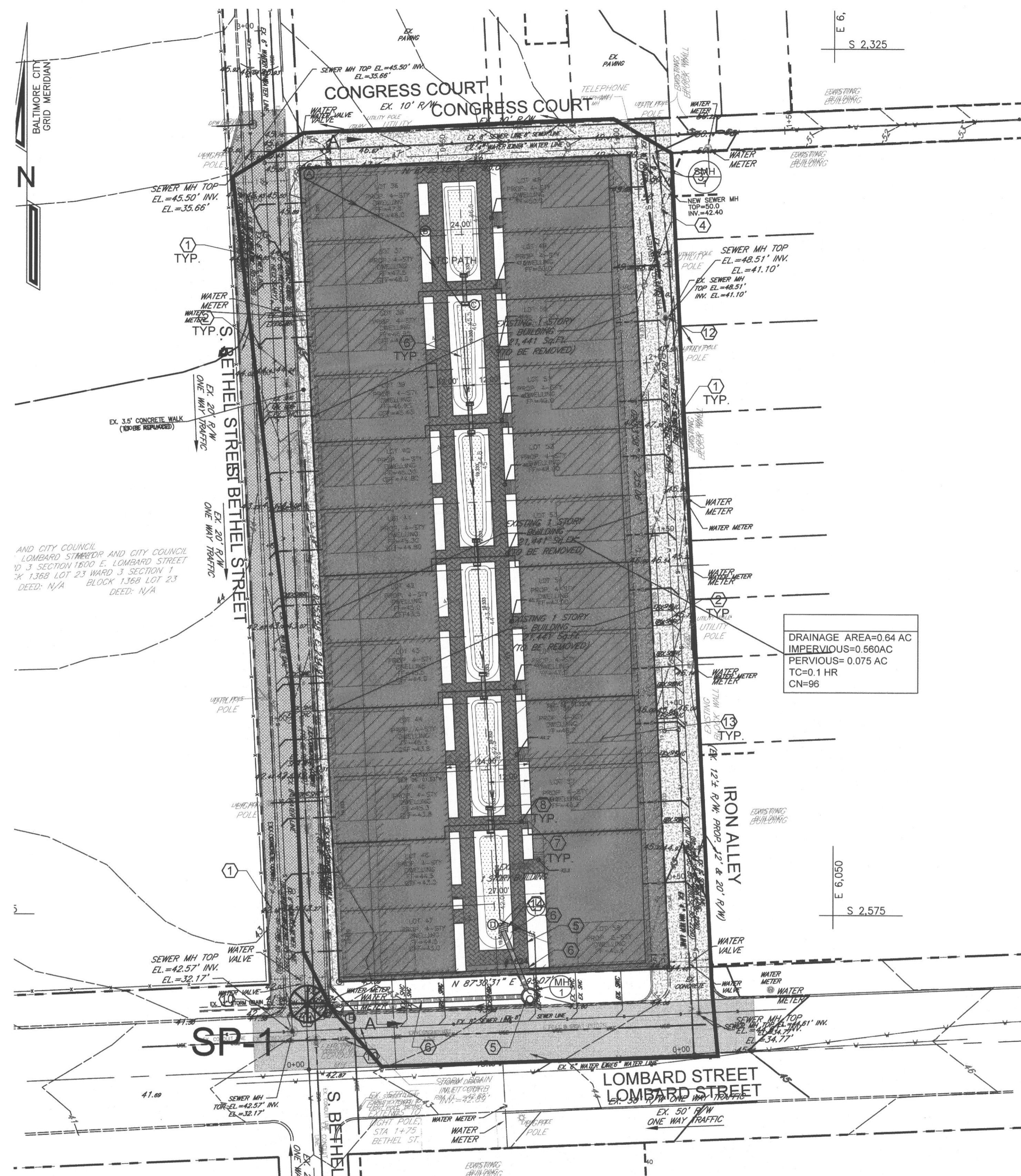
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**EXISTING DRAINAGE AREA MAP**

SWM-1





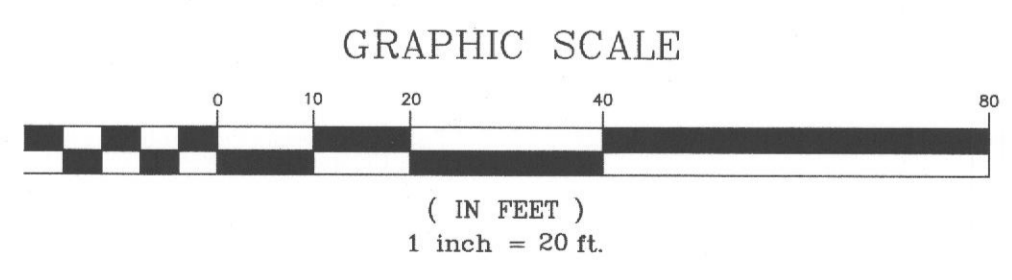
VICINITY MAP

LEGEND

- DRAINAGE AREA DIVIDE
- TIME OF CONCENTRATION (TC)
- SP-1 STUDY POINT
- PROPOSED IMPERVIOUS SURFACE

DRAINAGE AREA=0.64 AC  
 IMPERVIOUS=0.560AC  
 PERVIOUS=0.075 AC  
 TC=0.1 HR  
 CN=96

	SP-1
Drainage Area (AC)	0.64
Runoff Curve Number (RCN)	96
Time of Conc. (Tc) (HR)	0.1
Q1-year (CFS)	2.18
Q2-year (CFS)	2.78
Q10-year (CFS)	4.67



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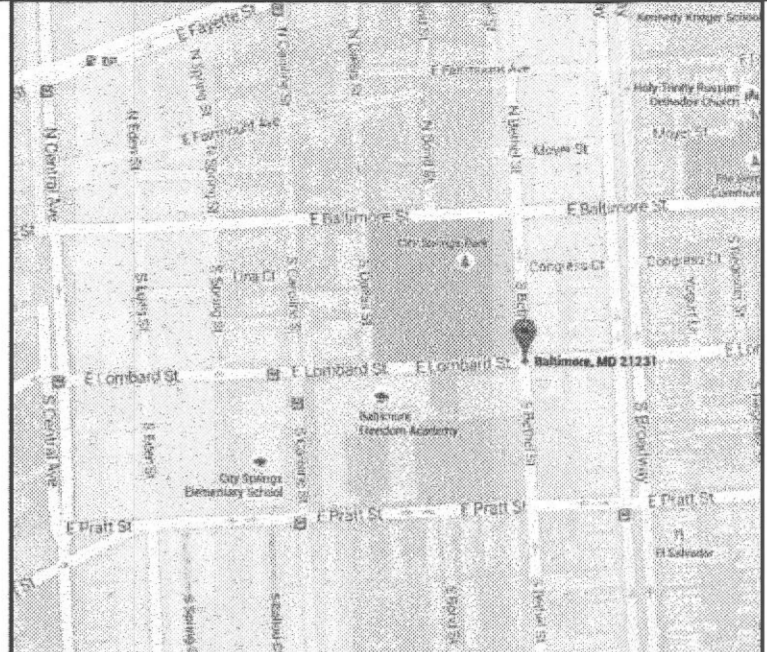
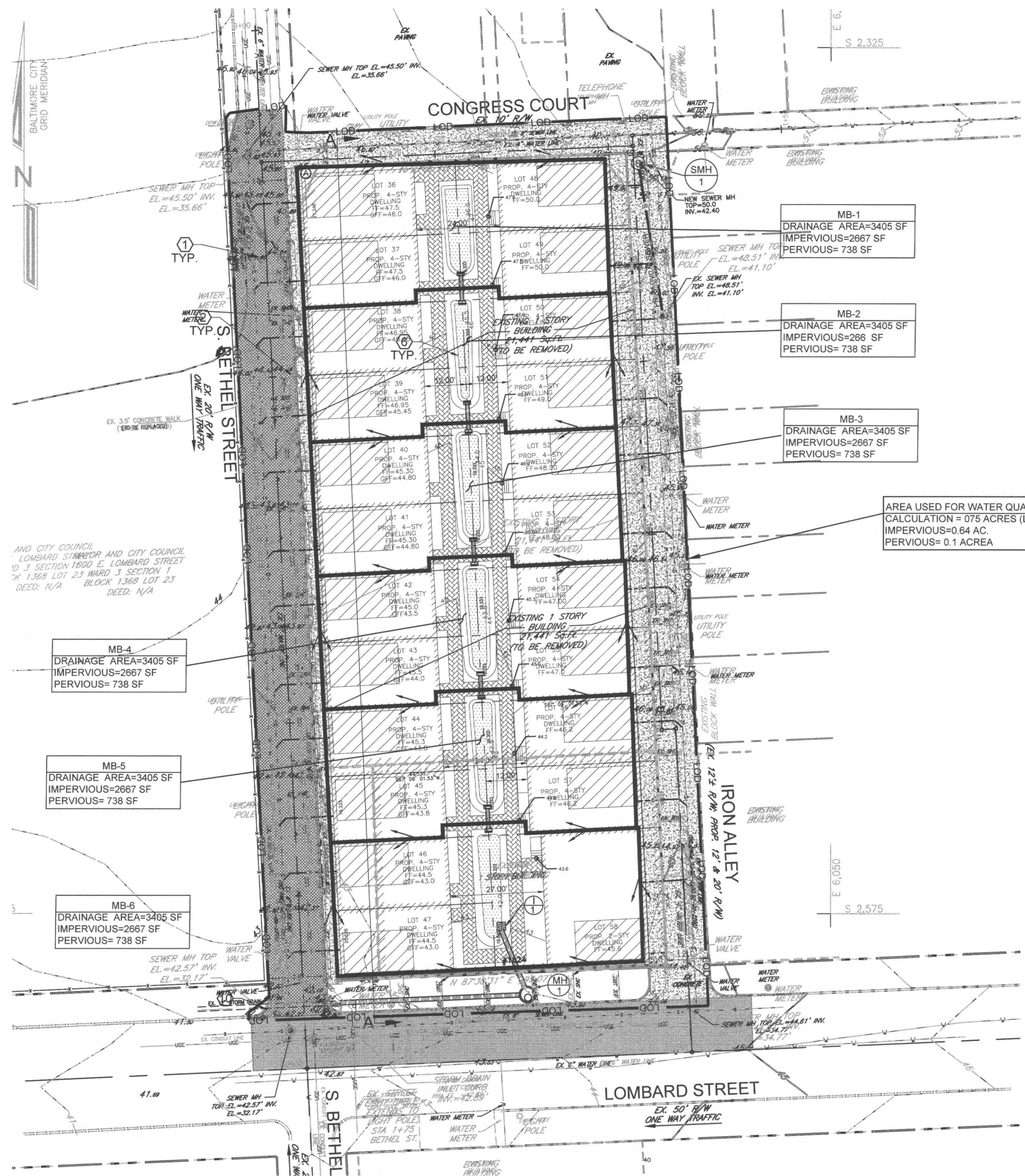
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2	SWM-ES	08/15/2016
1	BID-SET	02/5/2016

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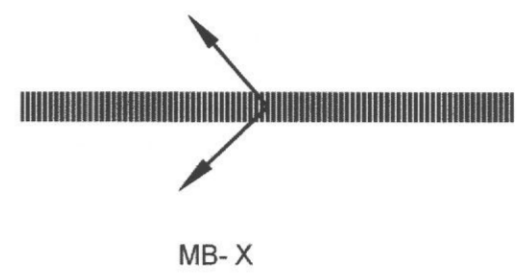
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 Project # 1501.01  
**PROPOSED DRAINAGE AREA MAP**

SWM-2



VICINITY MAP

LEGEND



DRAINAGE AREA DIVIDE  
MICRO BIORETENTION

SEE SWM-4 AND SWM-5 FOR STORMWATER MANAGEMENT CALCULATIONS

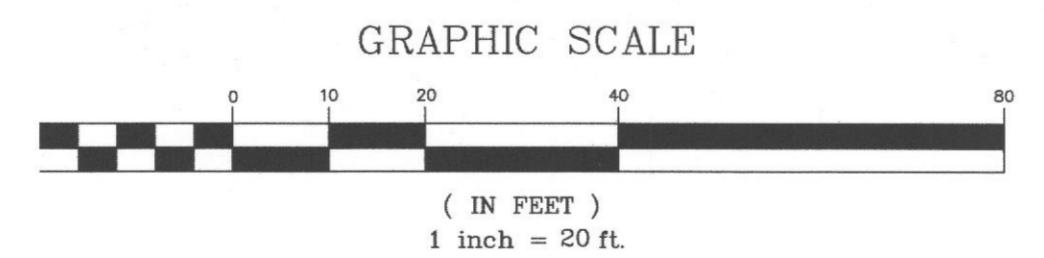
AREA USED FOR WATER QUALITY VOLUME CALCULATION = 0.75 ACRES (LOD)  
IMPERVIOUS = 0.64 AC.  
PERVIOUS = 0.1 ACRES

PRACTICE	DIMENSION	CONTRIBUTING DRAINAGE AREA	IMP. AREA	REQ'D TREATMENT VOLUME, ESDv (cf)	75% ESDv (cf)	PROV'D STORAGE VOLUME, ESDv (cf)	RECHARGE VOLUME (cf)	Pi REQ'D	Pe PROV'D
Microbioretention-1	Area = 147.7sf 2' Media w/1' ponding	3405	2667	213	160	244	N/A	1.0 in	1.05 in
Microbioretention-2	Area = 83.86sf 2' Media w/1' ponding	3405	2667	213	160	232	N/A	1.0 in	1.62 in
Microbioretention-3	Area = 133.58sf 2' Media w/1' ponding	3405	2667	213	160	232	N/A	1.0 in	1.05 in
Microbioretention-4	Area = 133.58sf 2' Media w/1' ponding	3405	2667	213	160	232	N/A	1.0 in	1.62 in
Microbioretention-5	Area = 133.58sf 2' Media w/1' ponding	3405	2667	213	160	232	N/A	1.0 in	1.62 in
Microbioretention-6	Area = 146.7sf 2' Media w/1' ponding	3405	2667	213	160	273	N/A	1.0 in	
<b>TOTAL</b>		<b>20430 SF</b>	<b>16002 SF</b>	<b>1277</b>	<b>958</b>	<b>1,445</b>			

Existing Imp. Area	0.75	AC
Proposed Imp. Area	0.64	AC
New Imp. Area (Proposed Imp. Area - Ex. Imp. Area)	-0.11	AC
Redevelopment Imp. Area (1/2 Existing Imp. Area)	0.38	AC
<b>Total Imp. Area to Treat (Redev. + New Imp.)</b>	<b>0.27</b>	<b>AC</b>

ESDv = [(PE)*(RV)*(AI)]/12	ESDv REQUIRED	75%
I = Imp Area / Drainage Area	REDEVELOPMENT	958 CU FT
PE = ESDv * 12 / Rv * A		
Rv = 0.05 + 0.009*I	ESDv PROVIDED =	1445 Cu Ft *

REQUIREMENT	VOLUME REQ'S (CUBIC FEET)		Discharge (CFS)		NOTE
	Existing	Proposed	Existing	Proposed	
ESDv	1277	1445 Cu Ft *	N/A	N/A	TREATMENT PROVIDED BY MICROBIORETENTION
Rev	N/A	N/A	N/A	N/A	REDEVELOPMENT
CPv	N/A	N/A	N/A	N/A	ADDRESSED BY ESDv
Qv	N/A	N/A	4.9	4.7	ADDRESSED BY ESDv
Qov	N/A	N/A	6.9	6.7	ADDRESSED BY ESDv



**ESD # 7121**

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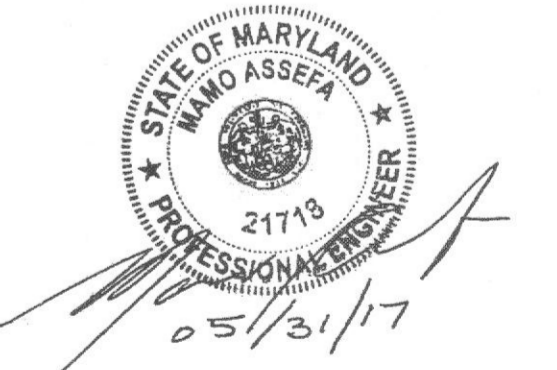
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1	BID-SET	02/5/2016



Date: 02/5/2016  
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**QUALITY CONTROL**  
E BMP DRAINAGE AREA MAP

SWM-3





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REV	DESCRIPTION	DATE
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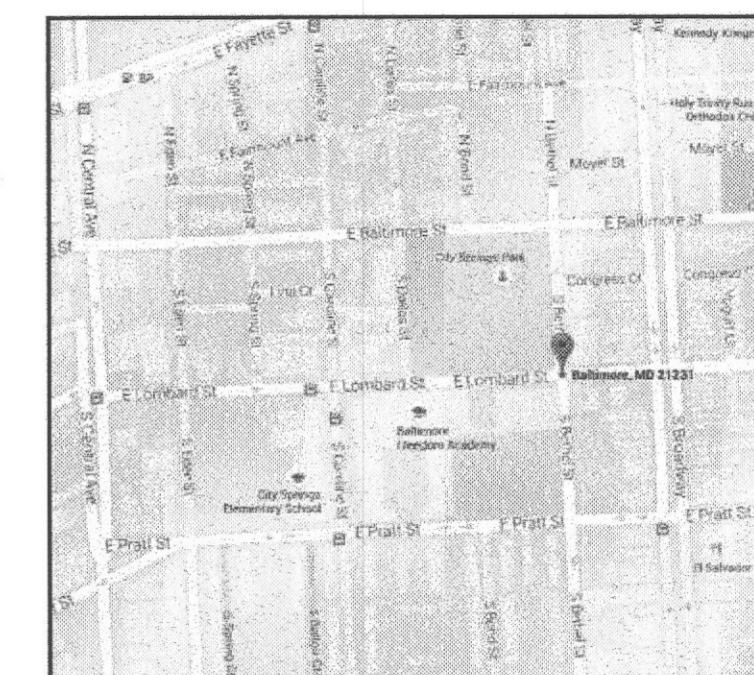
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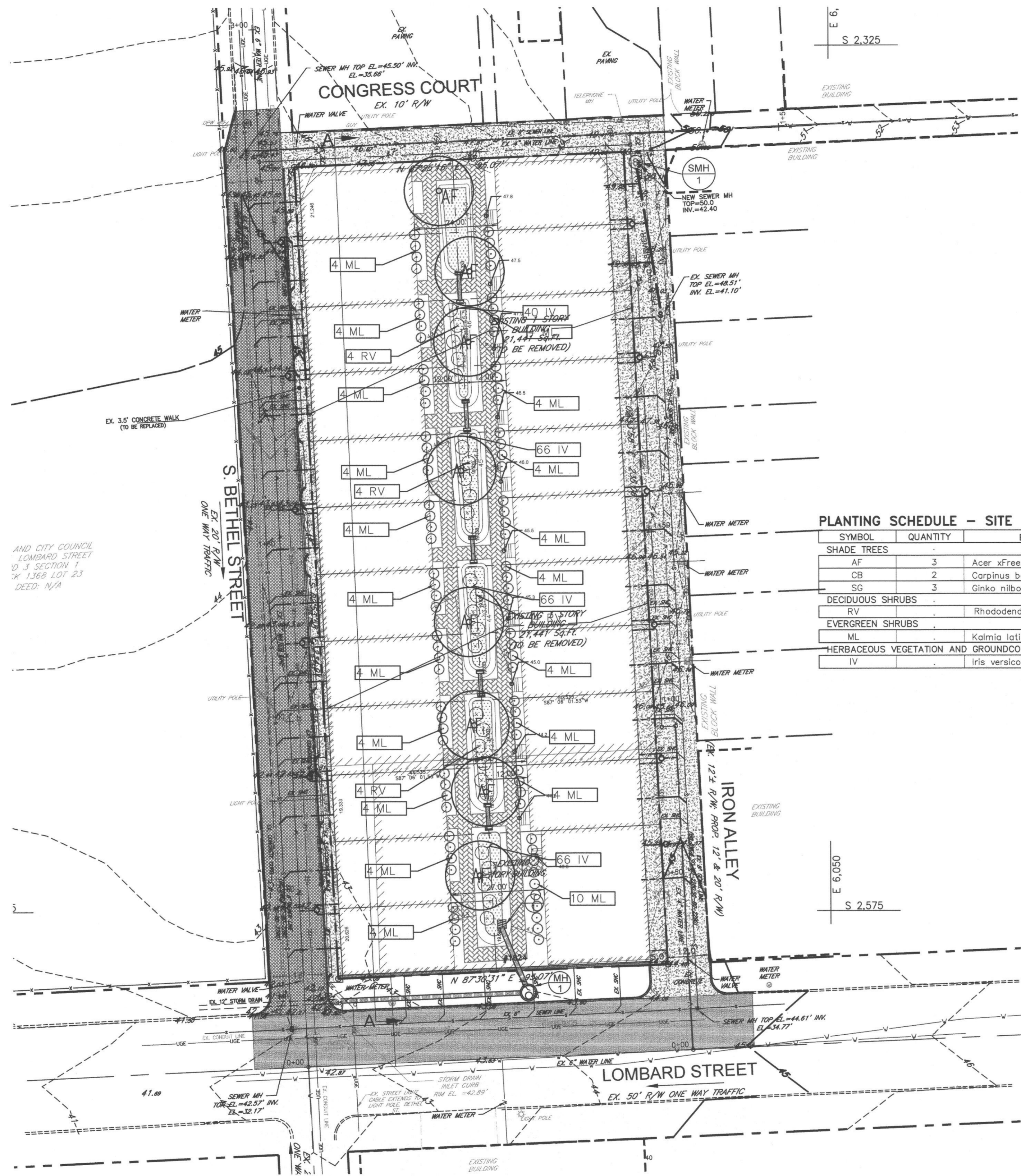
Date: 02/5/2016  
Project # 1501.01

E LANDSCAPE

L 1.1



VICINITY MAP



TOTAL AREA = 0.51 Ac  
15% x 0.51 = .0765 Ac  
100 Trees/Ac(2.5" Caliper) x .0765 = 8 trees

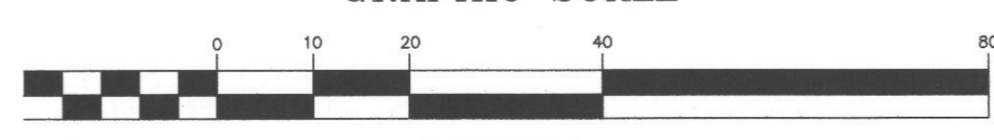
REQUIRED TREES  
TOTAL : 8 TREES

PROVIDED  
TOTAL: 8 TREES

PLANTING SCHEDULE - SITE

SYMBOL	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	SPACING
SHADE TREES						
AF	3	Acer xfreemanii 'Armstrong'	Armstrong Maple	2.5"-3" CAL	B&B	-
CB	2	Carpinus betulus 'fastigiata'	Columnar European Hornbeam	2.5"-3" CAL	B&B	-
SG	3	Ginkgo nilboa 'Sentry'	Sentry Ginkgo	2.5"-3" CAL	B&B	-
DECIDUOUS SHRUBS						
RV	-	Rhododendron viscosum	Swamp Azalea	30-36"	CONT.	48" O.C.
EVERGREEN SHRUBS						
ML	-	Kalmia latifolia	Mountain Laurel	30-36"	CONT.	52" O.C.
HERBACEOUS VEGETATION AND GROUNDCOVERS						
IV	-	Iris versicolor	Blue Flag Iris	Qt.	CONT.	24" TRIANGULAR SPACING

GRAPHIC SCALE



( IN FEET )  
1 inch = 20 ft.

ESD # 7121

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