TOWN OF IPSWICH, MASSACHUSETTS

IPSWICH RIVER SEWER INTERCEPTOR AND SIPHON RISK MITIGATION AND RESILIENCY IMPROVEMENTS PROJECT

MAY 2020

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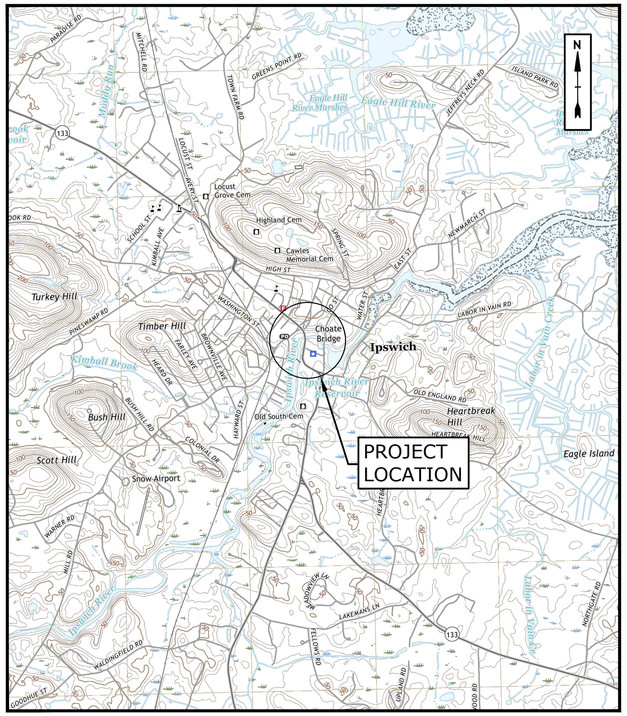

PREPARED BY:

Tighe&Bond
www.tighebond.com

STEPHEN E. SEIGAL, PE

IAN MEAD, PE, BCEE

PREPARED FOR:

TOWN OF IPSWICH

WATER & WASTEWATER DIRECTOR, VICKI HALMEN

TOWN MANAGER, ANTHONY MARINO

100% DRAWING SET

COMPLETE SET 17 SHEETS

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LEGEND

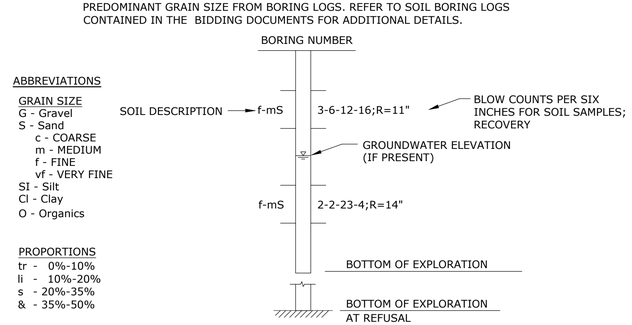
- DRAIN MANHOLE
- CATCH BASIN
- SANITARY MANHOLE
- INDIVIDUAL DECIDUOUS TREES
- INDIVIDUAL SHRUBS
- TRAFFIC PEDESTRIAN POST
- TRAFFIC CONTROL BOX
- TELECOMM MANHOLE
- TELECOMM POST
- ELECTRIC MANHOLE
- ELECTRIC TRANSFORMER
- UTILITY POLE
- LIGHTPOST
- GAS GATE
- WATER GATE
- HYDRANT
- WATER MANHOLE
- SIGN
- MAILBOX
- FLAGPOLE
- TREE STUMP
- PW — PUBLIC WATER LINE
- SS — SANITARY SEWER LINE
- G — GAS LINE
- T — BURIED TELEPHONE LINE
- E — BURIED ELECTRICAL LINE
- SD — STORM DRAIN LINE
- PL — PROPERTY LINE
- EL — EASEMENT LINE
- EDGE OF BITUMINOUS PAVEMENT (UNLESS OTHERWISE NOTED)
- EDGE OF UNPAVED DRIVE
- 102 — 2' INTERMEDIATE CONTOUR
- 100 — 10' INDEX CONTOUR
- RETAINING WALL
- WIRE GUARDRAIL
- METAL GUARDRAIL
- RIPRAP SLOPE
- RAILROAD TRACKS
- STONE WALL
- EDGE OF WOODED AREA
- HEDGES
- WIRE, METAL OR CHAIN LINK FENCE
- WOOD FENCE
- GUY WIRE
- CURBING
- B– BORE HOLE
- TOP OF COASTAL BANK
- MEAN ANNUAL HIGH WATER (MAHW)
- FEMA 100-YEAR FLOOD ZONE
- 100-FOOT BUFFER ZONE
- 2OO-FOOT RIVERFRONT AREA
- NO DISTURBANCE ZONE
- NO BUILD ZONE
- EROSION & SEDIMENT CONTROLS
- COFFER DAM
- TURBIDITY CURTAIN

ABBREVIATIONS

ASBESTOS CEMENT	AC
BITUMINOUS CONCRETE	BIT CONC
BITUMINOUS CURB	BC
BORDERING LAND SUBJECT TO FLOODING	BLSF
BOTTOM OF EXPLORATION	BOE
BORDERING VEGETATED WETLANDS	BVW
BURIED CABLE TV LINE	CTV
BURIED ELECTRICAL LINE	E
BURIED TELEPHONE LINE	T
CAST IRON	CI
CATCH BASIN	CB
CATCH BASIN DROP INLET	CB DI
CHAIN LINK FENCE	C/L FEN
CHIMNEY	CHIM
CLASS OF PIPE	CL
CLEANOUT	CO
CONCRETE	CONC
CONCRETE CURB	CC
CONCRETE WALK	CW
CORRUGATED METAL PIPE	CMP
CUT SPIKE	CS
DEBRIS	DB
DIRT PILE	DP
DRAIN MANHOLE	DMH
DRILL HOLE	DH
DUCTILE IRON	DI
ELEVATION	EL
FIRE HYDRANT	FH
FOUND	FD
FORCE MAIN	FM
GAS MAIN	G
GAS GATE	GG
GATE VALVE	GV
GRANITE CURB	GC
GUY WIRE	GUY WIRE
GUY POLE	GP
HARDWOOD	H/W
HOUSE	HSE
HYDRANT	HYD
HOUSE SERVICE	HS
IN FRONT OF	IFO
INVERT	INV
INTERIOR	INT
IRON PIPE OR IRON PIN	IP
IRON PIPE SIZE	IPS
MAIL BOX	MB
MANHOLE	MH
NO CURB	NC
NOT FOUND	NF
NATIONAL HERITAGE AND ENDANGERED SPECIES PROGRAM	NHESP
NOT IN THIS CONTRACT	NITC
NOT TO SCALE	NTS
OUTLET CONTROL STRUCTURE	OCS
POLYETHYLENE	PE
POLYVINYL CHLORIDE	PVC
PUBLIC WATER	PW
REINFORCED CONCRETE PIPE	RCP
REMOVE AND DISPOSE	R&D
SANITARY MANHOLE	SMH
SANITARY SEWER	S
STATION	STA
STONE BOUND	SB
STRUCTURE	STR
TEMPORARY BENCH MARK	TBM
TELEPHONE POLE	TP
TRAFFIC CONTROL	TC
UNDERGROUND	U/G
UTILITY POLE	UP
UNDELINEATED WETLAND AREA	UWA
VITRIFIED CLAY	VC
WATER GATE	WG
WATER TIGHT COVER	WTC
WATER MAIN OR SERVICE	W
WELDED WIRE FABRIC	WWF

BORING LOG PROFILE LEGEND

PREDOMINANT GRAIN SIZE FROM BORING LOGS. REFER TO SOIL BORING LOGS CONTAINED IN THE BIDDING DOCUMENTS FOR ADDITIONAL DETAILS.



ABBREVIATIONS

GRAIN SIZE
- G - Gravel
- S - Sand
  - c - COARSE
  - m - MEDIUM
  - f - FINE
  - vf - VERY FINE
- SI - Silt
- Cl - Clay
- O - Organics

PROPORTIONS
- tr - 0%-10%
- li - 10%-20%
- s - 20%-35%
- & - 35%-50%

GENERAL NOTES

1. BOLD TEXT AND LINES INDICATE PROPOSED WORK. LIGHT TEXT AND LINES INDICATE APPROXIMATE EXISTING CONDITIONS.
2. THE EXISTING CONDITIONS INFORMATION SHOWN ON THE DRAWINGS ARE APPROXIMATE AND BASED ON THE FOLLOWING SOURCES:
   A. A SURVEY PLAN TITLED "SANITARY SEWER PLAN VICINITY OF SOUTH MAIN STREET TO COUNTY STREET" BY GRAHAM ASSOCIATES, INC., DATED MATCH 14, 2018 AND REVISED PLAN RELATIVE TO NAVD88. IN RIVER BATHMETRY NOT PROVIDED AND WATER LEVELS NOT GIVEN.
   B. LIMITED FIELD INVESTIGATIONS PERFORMED BY TIGHE & BOND.
   C. ADDITIONAL PLAN TITLED "PLAN ACCOMPANYING PETITION OF TOWN OF IPSWICH TO REPLACE FILL AND SEWER PIPELINE WITH CROSSING IN THE IPSWICH RIVER, IPSWICH, MASS" DATED 4/27/1959.
   D. "CHAPTER 91 JURISDICTION" DEVELOPED FROM MASS GIS OLIVER SYSTEM.
2. HORIZONTAL DATUM IS NAD83. VERTICAL DATUM IS NAVD88.
3. PROPERTY LINES SHOWN ARE BASED ON ASSESSOR'S DATA, A LIMITED REVIEW OF AVAILABLE PLANS, AND VISIBLE FIELD MONUMENTATION SURVEYED IN THE PROJECT AREA, AND ARE NOT THE RESULT OF PROPERTY LINE SURVEYS.
4. WHEREVER POSSIBLE, CONSTRUCT SANITARY SEWERS AT LEAST 10 FEET HORIZONTALLY AND 18 INCHES VERTICALLY FROM ANY EXISTING OR PROPOSED WATER MAIN.
5. SANITARY BYPASS PUMPING, IF REQUIRED, SHALL BE PROVIDED BY THE CONTRACTOR AND INCLUDED IN APPROPRIATE BID ITEMS.
6. EXISTING UTLITY LOCATIONS ARE APPROXIMATE AND BASED ON AVAILABLE INFORMATION. DETERMINE THE EXACT LOCATION OF UTILITIES BY TEST PIT OR OTHER METHODS AS NECESSARY. COMPLETE TEST PIT WORK PRIOR TO COMMENCING SEWER CONSTRUCTION WORK IN THIS CONTRACT. THE ENGINEER SHALL USE TEST PIT INFORMATION TO DIRECT THE CONTRACTOR IN THE EVENT OF A CONFLICT BETWEEN A PROPOSED UTILITY LOCATION/ELEVATION AND AN EXISTING UTILITY LOCATION AND/OR ELEVATION.
7. DRIVEWAYS AND DRIVEWAY APRONS ARE BITUMINOUS CONCRETE, UNLESS NOTED OTHERWISE.
8. BORING LOCATIONS SHOWN ARE APPROXIMATE AND BORING INFORMATION IS NOT GUARANTEED IN ANY WAY TO REPRESENT THE EXISTING CONDITIONS. BORING LOGS ARE INCLUDED IN THE BIDDING DOCUMENTS.
9. MANHOLES SHALL BE 48" DIAMETER, UNLESS NOTED OTHERWISE.
10. MAINTAIN EMERGENCY ACCESS TO ALL PROPERTIES WITHIN THE PROJECT AREA AT ALL TIMES.
11. PROTECTION OF ALL UTILITIES INCLUDING THIRD PARTY UNDERGROUND UTILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR. PROPER REPAIRS OF DAMAGED UTILITIES SHALL BE MADE BY THE CONTRACTOR OR UTILITY COMPANY, AS ARRANGED BY THE CONTRACTOR, AND AS ACCEPTABLE TO THE ENGINEER. NO ADDITIONAL COMPENSATION WILL BE PROVIDED UNDER THIS CONTRACT FOR THE REPAIR OF THIRD-PARTY UTILITIES IN THE PROJECT AREA.
12. SLOPES OF EXISTING AND PROPOSED PIPES ARE BASED ON DISTANCES FROM CENTERLINE TO CENTERLINE OF STRUCTURES.
13. OVERHEAD WIRES ARE NOT SHOWN ON THE DRAWINGS, FOR CLARITY.
14. NOTIFY DIGSAFE AT 1-888-344-7233 AND ALL UTILITY OWNERS IN THE AREA NOT ON THE DIGSAFE LIST AT LEAST 72 HOURS PRIOR TO ANY DIGGING, TRENCHING, ROCK REMOVAL, DEMOLITION, BORING, BACKFILLING, GRADING, LANDSCAPING, OR ANY OTHER EARTH MOVING OPERATIONS

EROSION AND SEDIMENTATION CONTROL NOTES

1. ALL EROSION CONTROL MEASURES SHOWN ON THE DRAWINGS, SPECIFIED AND/OR REQUIRED SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION OR IMMEDIATELY UPON REQUEST. THE CONTRACTOR SHALL MAINTAIN ALL SUCH CONTROL MEASURES UNTIL FINAL SURFACE TREATMENTS ARE IN PLACE AND/OR UNTIL PERMANENT VEGETATION IS ESTABLISHED.
2. PRIOR TO STARTING WORK, CLEARLY STAKE WORK LIMIT LINE(S). DO NOT DISTURB VEGETATION AND TOPSOIL BEYOND THE PROPOSED LIMIT LINE. THE CONTRACTOR SHALL ALSO COORDINATE WITH THE ENGINEER THE LOCATIONS FOR THE TEMPORARY STOCKPILING OF TOPSOIL DURING CONSTRUCTION.
3. SIDE SLOPES, SHOULDER AREAS AND DISTURBED VEGETATED AREAS SHALL BE COMPACTED, STABILIZED, AND LOAMED AND SEEDED AS SHOWN ON THE DRAWINGS AND/OR AS SPECIFIED.
4. SILT TRAPPED AT BARRIERS SHALL BE REMOVED AND PROPERLY DISPOSED OF IN UPLAND AREAS OUTSIDE BUFFER ZONES. MATERIALS DEPOSITED IN ANY TEMPORARY SETTLING BASIN SHALL BE REMOVED AT THE COMPLETION OF THE PROJECT. ALL DISTURBED AREAS SHALL BE RESTORED TO THEIR PRE-CONSTRUCTION CONDITION.
5. ALL SILT-LADEN WATER MUST BE SETTLED OR FILTERED TO REMOVE SEDIMENT PRIOR TO RELEASE USING A SEDIMENTATION OR FILTER BAG LOCATED DOWNGRADIENT OF THE DEWATERED AREA.
6. CONTRACTOR SHALL DEWATER AS NECESSARY TO KEEP CONSTRUCTION AREAS FREE OF WATER. CONTRACTOR SHALL DISCHARGE WATER FROM DEWATERING WITHOUT SEDIMENTATION.
7. ANY SEDIMENT TRACKED ONTO PUBLIC RIGHTS-OF-WAY SHALL BE SWEPT AWAY AT THE END OF EACH DAY.
8. EROSION AND SEDIMENTATION CONTROL REQUIREMENTS ARE INCLUDED IN THE MASSACHUSETTS WETLAND PROTECTION ACT NOTICE OF INTENT (NOI) AND THE ORDER OF CONDITIONS ISSUED BY THE IPSWICH CONSERVATION COMMISSION, INCLUDED IN SECTION 00800 OF THE PROJECT MANUAL, AND ARE ILLUSTRATED ON THESE DRAWINGS.

Tighe&Bond
Engineers | Environmental Specialists

100% DRAWING SET

Ipswich River Sewer Interceptor and Siphon Risk Mitigation and Resiliency Improvements Project

Town of Ipswich

Ipswich, Massachusetts

MARK	DATE	DESCRIPTION
C	5/22/2020	100% DRAWING SET
B	3/4/2020	REVISION
A	8/8/2019	NOI SUBMITTAL

PROJECT NO:	I0066-10
DATE:	5/22/20
FILE:	I0066-Task10-G-002.dwg
DRAWN BY:	CFY
CHECKED:	DOR, DPR
APPROVED:	SES, IM

LEGEND, ABBREVIATIONS, AND GENERAL NOTES

SCALE: NO SCALE

G-002
SHEET 2 OF 17

Last Saved: 4/16/2020
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SMH INVERT TABLE

SMH 21
RIM=8.80
INV IN (NW)=
INV OUT (NE)=

SMH 20A
RIM=7.88
INV IN (SW)=
IN IN (S)=
INV OUT (NE)=

SMH 20
RIM=7.18
INV IN (SW)=3.1
INV OUT(NE)=3.1

SMH 19
RIM=8.17
INV IN (SW)=2.5
INV OUT (SE)=2.5

SMH 18
RIM =11.88
INV IN (NW)=2.1
INV IN (SW)=2.7
INV OUT (SE)=2.0

SMH 17A
RIM=10.68
INV IN (NW)=1.9
INV OUT (SE)=1.9

SMH 17
RIM=17.55
INV IN (NW)=
INV IN (N)=
INV OUT (SE)=

SMH 18B
RIM=13.99
INV IN (NE)=11.3
INV IN (NE
DROP)=9.4
INV OUT (SW)=9.4

SMH 18A
RIM=9.41
INV IN (NE)=3.3
INV OUT (NE)=3.3

SMH 36
RIM=11.82
INV IN (SW)=4.9
INV OUT (NE)=4.9

SMH 35
RIM=11.63
INV IN (SW)=4.6
INV OUT (E)=4.6

SMH 34
RIM=6.67
INV IN (W)=3.8
INV IN (SW)=4.1
INV IN (SE)=3.2
INV OUT (NE)=3.1

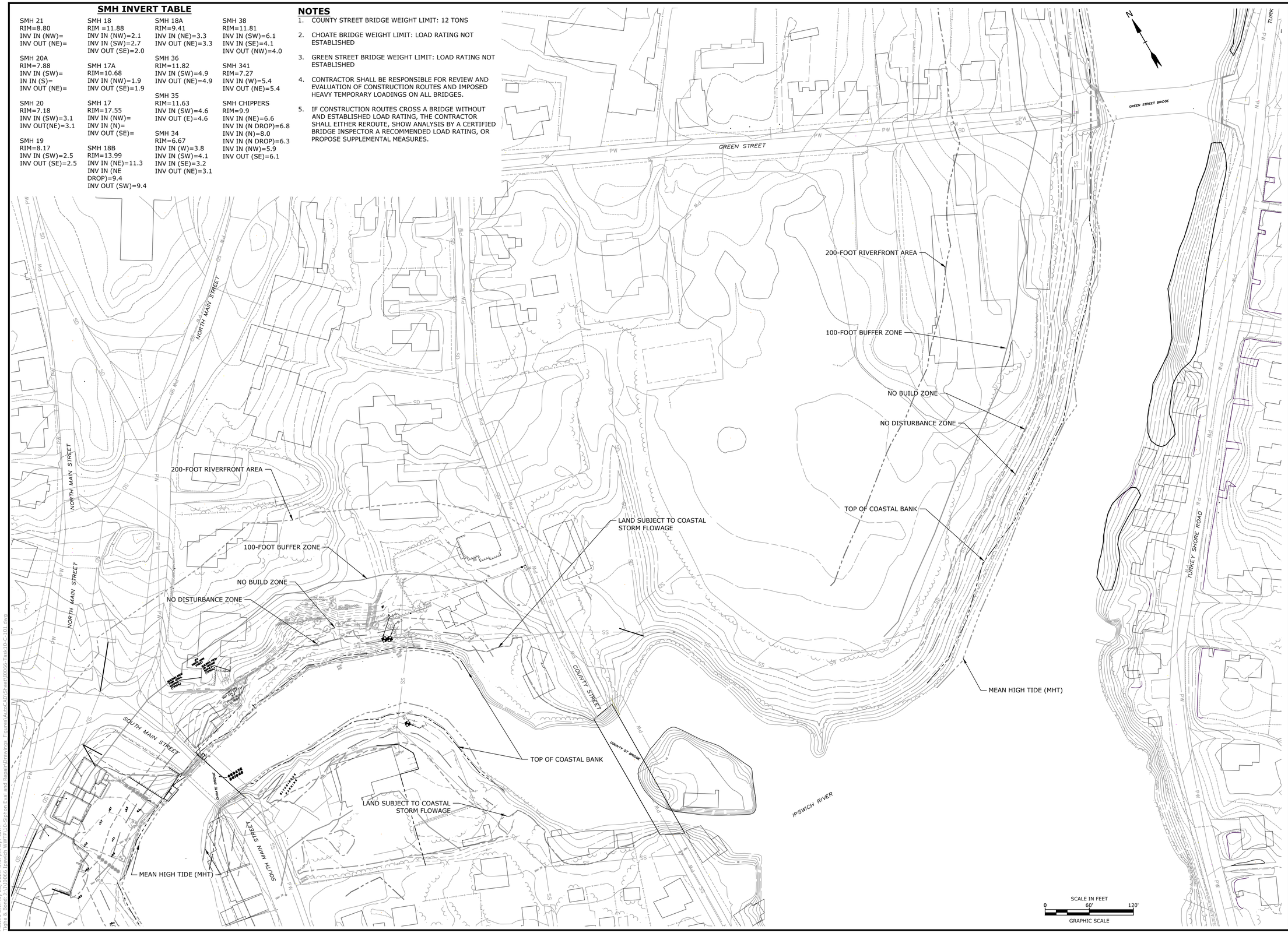
SMH 38
RIM=11.81
INV IN (SW)=6.1
INV IN (SE)=4.1
INV OUT (NW)=4.0

SMH 341
RIM=7.27
INV IN (W)=5.4
INV OUT (NE)=5.4

SMH CHIPPERS
RIM=9.9
INV IN (NE)=6.6
INV IN (N DROP)=6.8
INV IN (N)=8.0
INV IN (N DROP)=6.3
INV IN (NW)=5.9
INV OUT (SE)=6.1

NOTES

1. COUNTY STREET BRIDGE WEIGHT LIMIT: 12 TONS
2. CHOATE BRIDGE WEIGHT LIMIT: LOAD RATING NOT ESTABLISHED
3. GREEN STREET BRIDGE WEIGHT LIMIT: LOAD RATING NOT ESTABLISHED
4. CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEW AND EVALUATION OF CONSTRUCTION ROUTES AND IMPOSED HEAVY TEMPORARY LOADINGS ON ALL BRIDGES.
5. IF CONSTRUCTION ROUTES CROSS A BRIDGE WITHOUT AND ESTABLISHED LOAD RATING, THE CONTRACTOR SHALL EITHER REROUTE, SHOW ANALYSIS BY A CERTIFIED BRIDGE INSPECTOR A RECOMMENDED LOAD RATING, OR PROPOSE SUPPLEMENTAL MEASURES.



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PROJECT NO:	I0066-10
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FILE:	I0066-Task10-C-101.dwg
DRAWN BY:	CFY
CHECKED:	DOR, DPR
APPROVED:	SES, IM

EXISTING CONDITIONS PLAN

SCALE: 1"=60'

C-101
SHEET 3 OF 17

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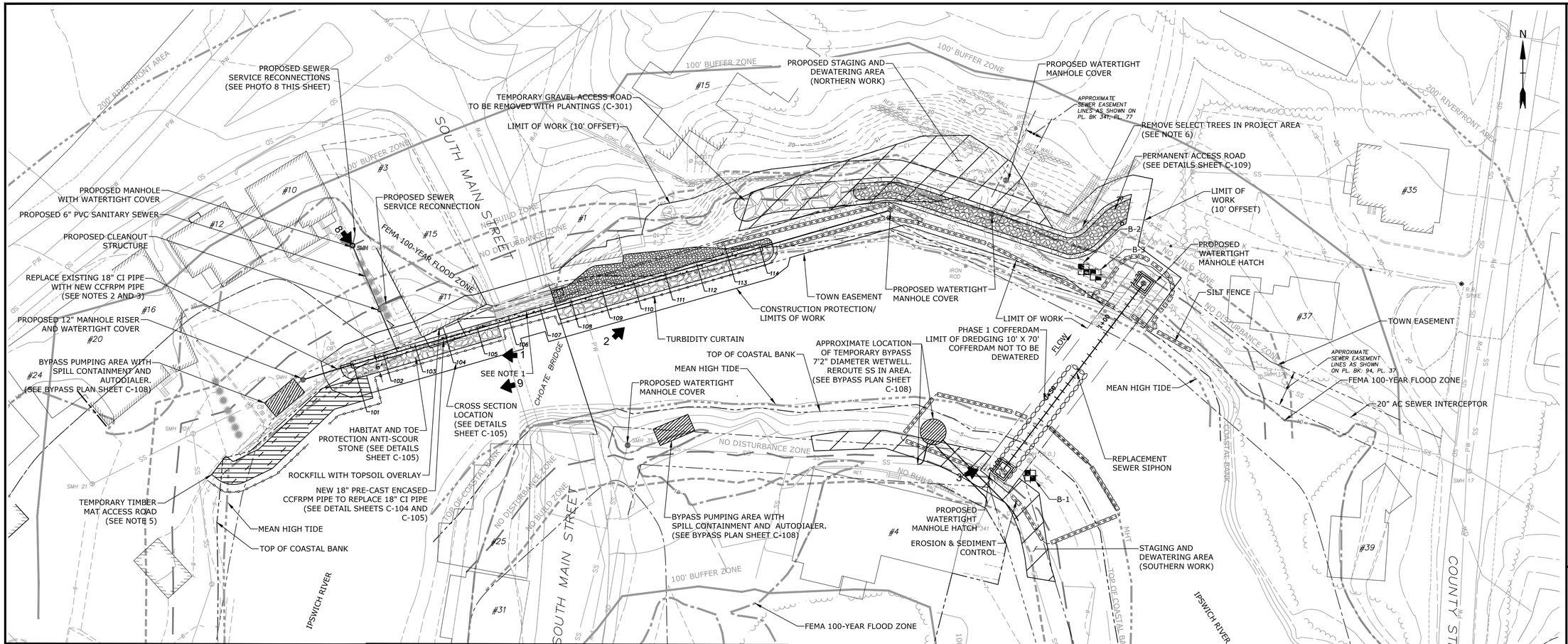
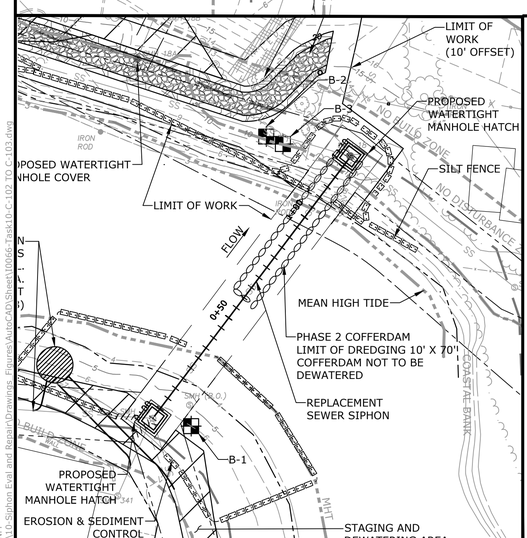
Tighe & Bond:J:\I\I0066 Ipswich WWTP\10-Siphon Eval and Repair\Drawings_Figures\AutoCAD\Sheet\I0066-Task10-C-101.dwg





PHASE 2 COFFERDAM

8
C-102

9
C-102

LEGEND

- EXISTING SEWER
- PROPOSED STAGING AND DEWATERING AREA
- PROPOSED GRAVEL ACCESS ROAD
- TEMPORARY GRAVEL ACCESS ROAD
- TEMPORARY TIMBER MAT ACCESS
- PROPOSED ROCKFILL
- PROPOSED RIPRAP
- PROPOSED SEWER
- 1 EXTERIOR PHOTOGRAPH (SHEET C-110 AND C-112)

NOTE:
1. EXCERCISE EXTREME CAUTION UNDER BRIDGE DUE TO OVERHEAD SPACE CONSTRAINT.
2. CCFRPM PIPE = CENTRIFUGAL CAST, FIBERGLASS-REINFORCED, POLYMER MORTAR PIPE.
3. TEMPORARILY REMOVE STONE WALL BLOCKS FOR NEW PIPE INSTALLATION. RESET ONCE PIPE IS COMPLETE. BURIED PIPE DOES NOT NEED TO BE ENCASED IN CONCRETE.
4. CONTRACTOR SHALL PROTECT EXISTING PARKING LOT, CURB, AND LANDSCAPING. ANY DAMAGED EXISTING CONDITIONS SHALL BE REPLACED IN KIND.
5. CONTRACTOR TO REMOVE ROCKS AS NECESSARY TO CREATE TEMPORARY EQUIPMENT ACCESS. RESTORE EXISTING FEATURES ONCE WORK IS COMPLETE.
6. TREES SHALL BE SELECTIVELY REMOVED FROM PROJECT AREA. COORDINATE WITH OWNER AND ENGINEER. SEE SPECIFICATION SECTION 02230 - SITE CLEARING.

REFERENCE PLANS:
1. "SANITARY SEWER PLAN VICINITY OF SOUTH MAIN STREET TO COUNTY STREET" DATED 3/14/2018 REVISED 5/29/2018 IN FEET RELATIVE TO NAVD88. IN RIVER BATHYMETRY NOT PROVIDED AND WATER LEVELS NOT GIVEN.
2. "PLAN ACCOMPANYING PETITION OF TOWN OF IPSWICH TO REPLACE FILL AND SEWER PIPELINE WITH CROSSING IN THE IPSWICH RIVER, IPSWICH, MASS" DATED 4/27/1959.

SCALE IN FEET 0 30' 60'
GRAPHIC SCALE

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PROJECT NO:	I0066-10
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INTERCEPTOR REHABILITATION SITE PLAN

SCALE: 1"=30'

C-102
SHEET 4 OF 17

Last Saved: 5/26/2020
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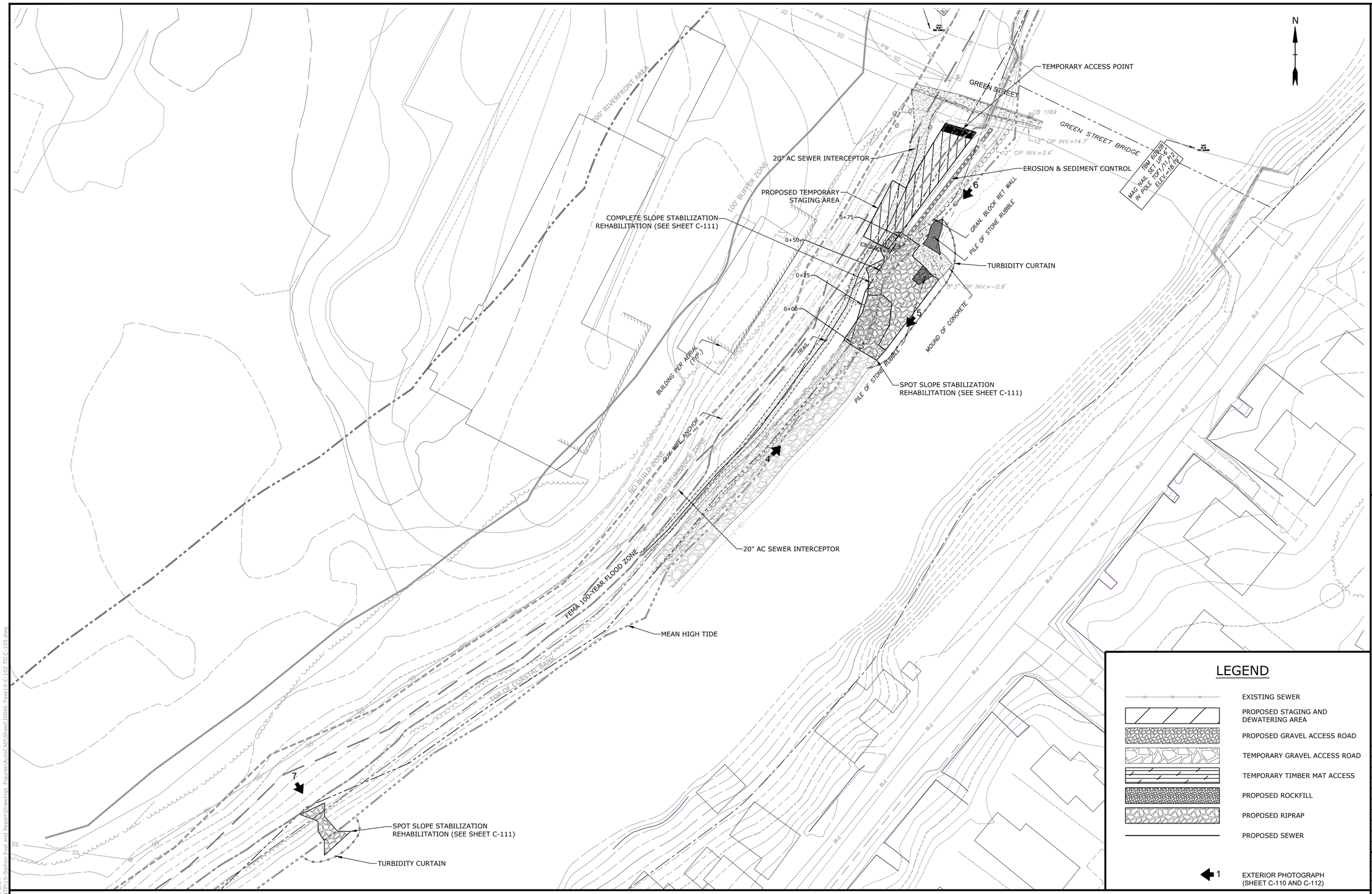
Tighe & Bond:J:\I\I0066 Ipswich WWTP\10-Siphon Eval and Repair\Drawings_Figures\AutoCAD\Sheet\I0066-Task10-C-102 TO C-103.dwg



LEGEND

- EXISTING SEWER
- PROPOSED STAGING AND DEWATERING AREA
- PROPOSED GRAVEL ACCESS ROAD
- TEMPORARY GRAVEL ACCESS ROAD
- TEMPORARY TIMBER MAT ACCESS
- PROPOSED ROCKFILL
- PROPOSED RIPRAP
- PROPOSED SEWER
- 1 EXTERIOR PHOTOGRAPH (SHEET C-110 AND C-112)

REFERENCE PLANS:

1. "SANITARY SEWER PLAN VICINITY OF SOUTH MAIN STREET TO COUNTY STREET" DATED 3/14/2018 REVISED 5/29/2018 IN FEET RELATIVE TO NAVD88. IN RIVER BATHYMETRY NOT PROVIDED AND WATER LEVELS NOT GIVEN.
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SCALE IN FEET
0 30' 60'
GRAPHIC SCALE

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DRAWN BY:	SAT
CHECKED:	DOR, DPR
APPROVED:	SES, IM

SLOPE STABILIZATION SITE PLAN

SCALE: 1"=30'

C-103
SHEET 5 OF 17

Last Saved: 5/26/2020
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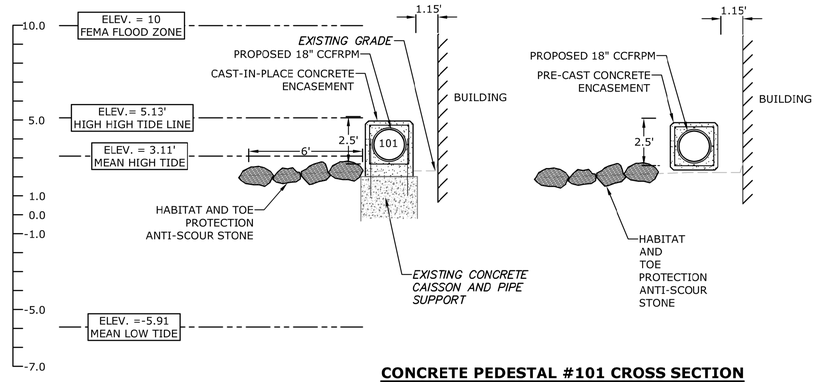
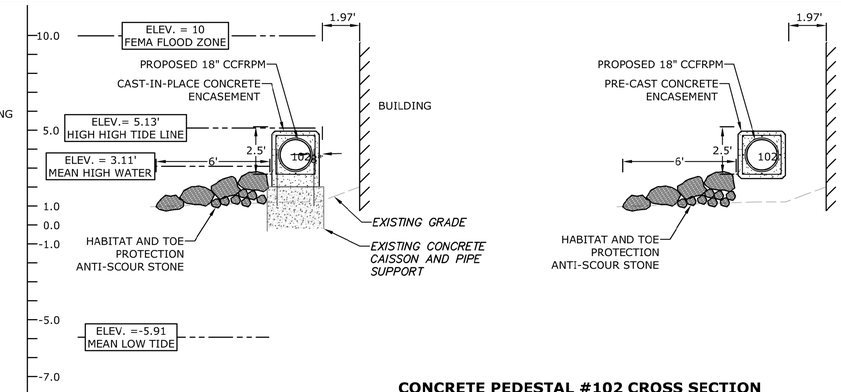
Tighe & Bond:J:\I10\I0066 Ipswich WWTP\10-Siphon Eval and Repair\Drawings_Figures\AutoCAD\Sheet\I0066-Task10-C-102 TO C-103.dwg

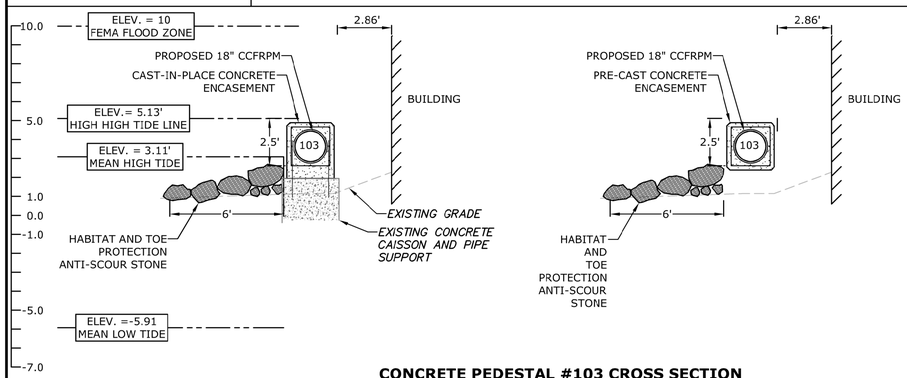
NOTES:
1. ELEVATIONS AND SLOPES ARE APPROXIMATE BASED ON TOWN PROVIDED SURVEY AND LIMITED TAPE MEASUREMENTS ALONG PIPE.
2. CONTRACTOR AND OWNER TO COORDINATE ON FINAL RESTORATION PLAN
3. TOPSOIL AND ROCKFILL RESTORATION TO EXTEND 5 FEET PAST VERTICAL FACE OF CAISSON OPPOSITE OF RIVER. CONTRACTOR TO MATCH EXISTING GRADE AT LIMITS OF WORK.



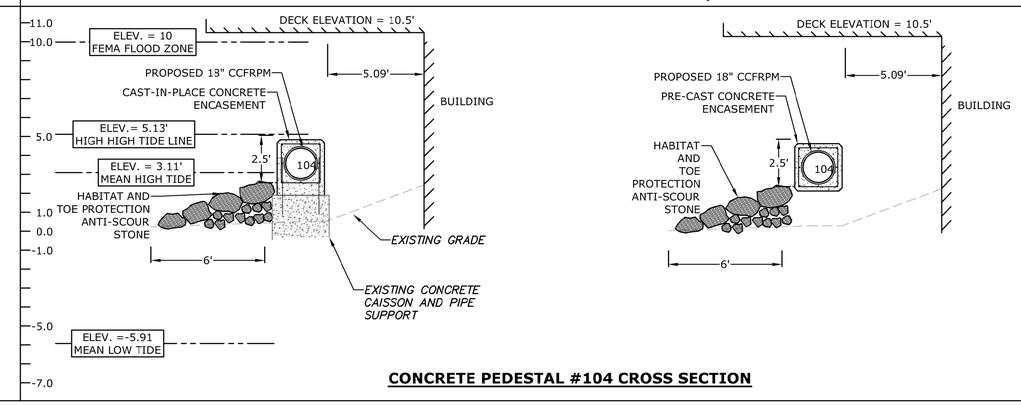
CONCRETE PEDESTAL #101 CROSS SECTION



CONCRETE PEDESTAL #102 CROSS SECTION



CONCRETE PEDESTAL #103 CROSS SECTION



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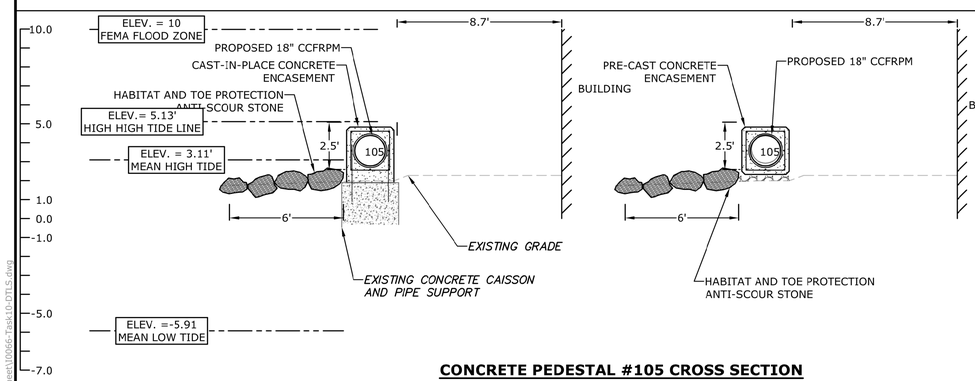

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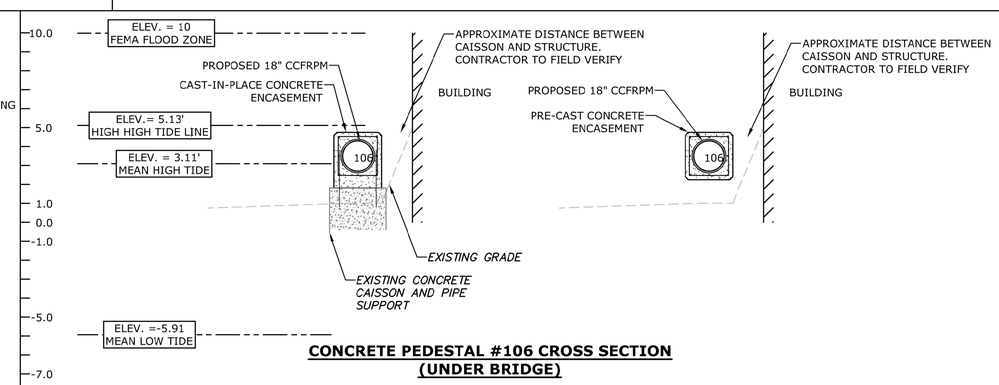
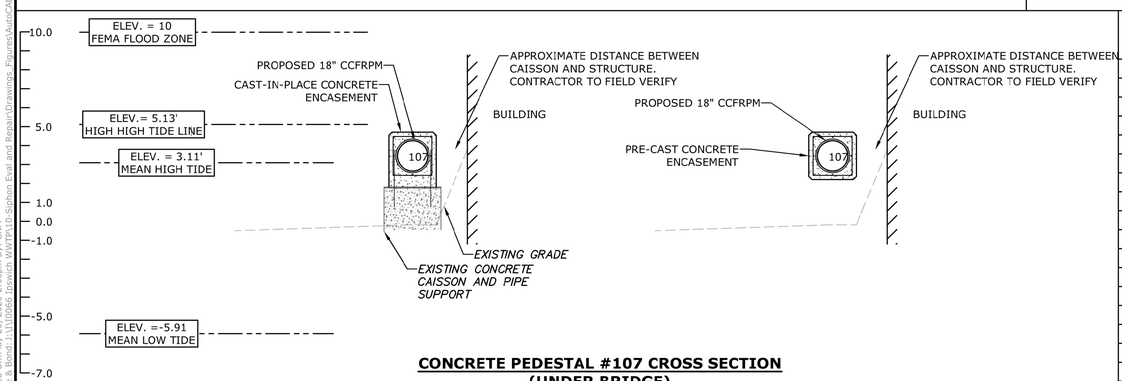
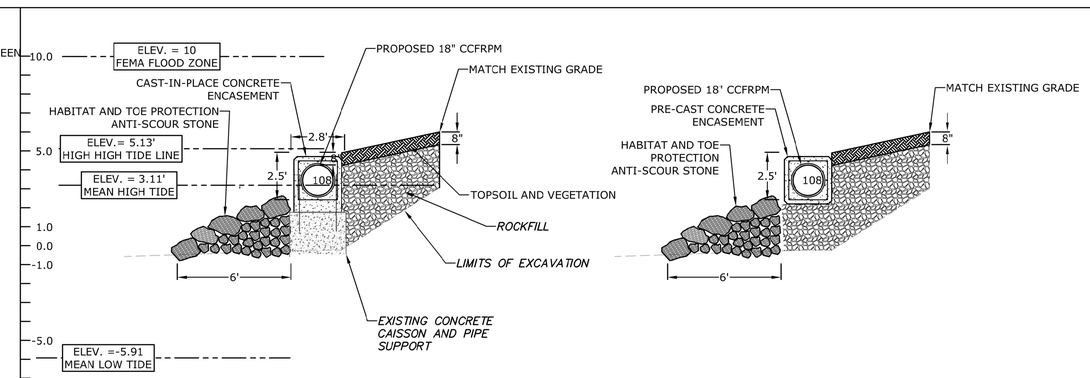


CONCRETE PEDESTAL #106 CROSS SECTION (UNDER BRIDGE)



CONCRETE PEDESTAL #107 CROSS SECTION (UNDER BRIDGE)



CONCRETE PEDESTAL #108 CROSS SECTION

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PROJECT NO:	I0066-10
DATE:	5/22/20
FILE:	I0066-Task10-DTLS.dwg
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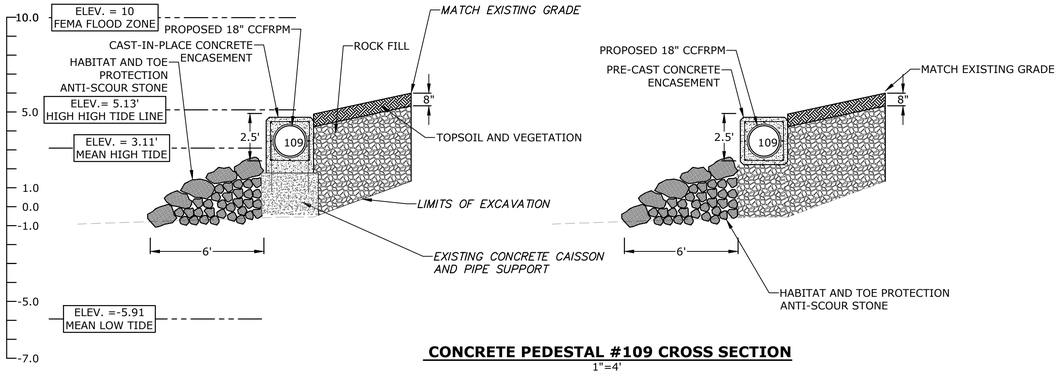
CHECKED:	DOR, DPR
APPROVED:	SES, IM

INTERCEPTOR REHABILITATION - DETAILS 1

SCALE: 1"=4'

C-104
SHEET 6 OF 17

Last Saved: 5/21/2020
Plotted On:May 21, 2020-2:06pm By: GHM
Tighe & Bond:J:\I\I0066 Ipswich WWTP\10-Siphon Eval and Repair\Drawings_Figures\AutoCAD\Sheet\I0066-Task10-DTLS.dwg



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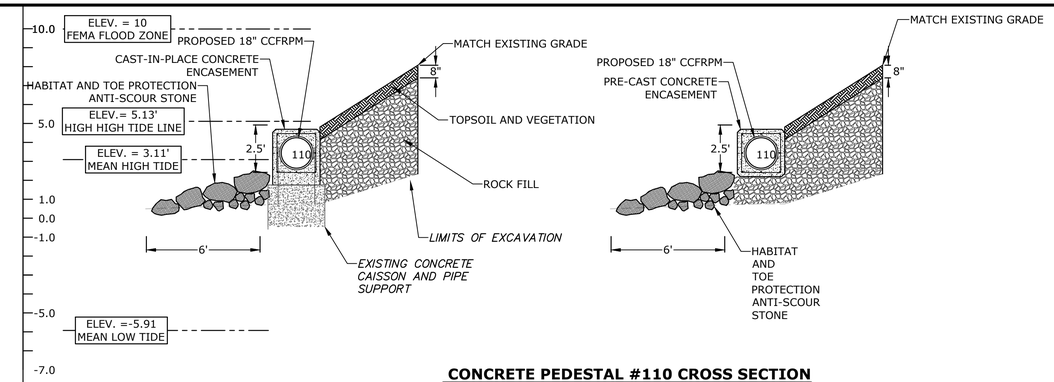
1"=4'



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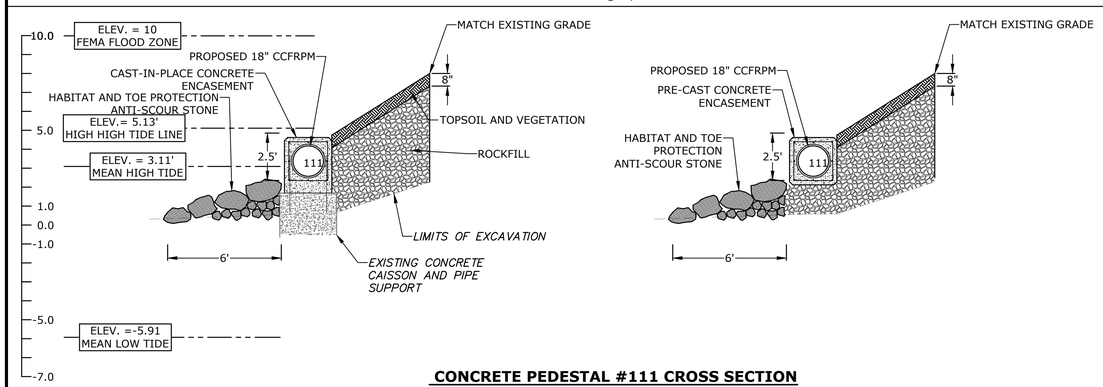
1"=4'



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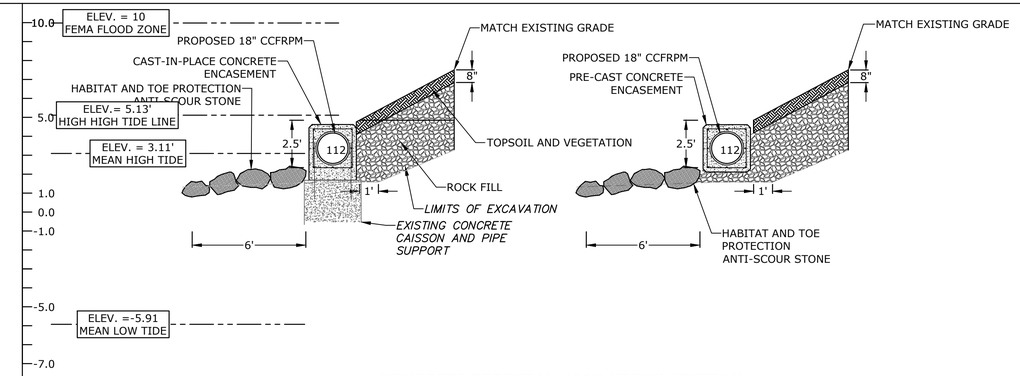
1"=4'



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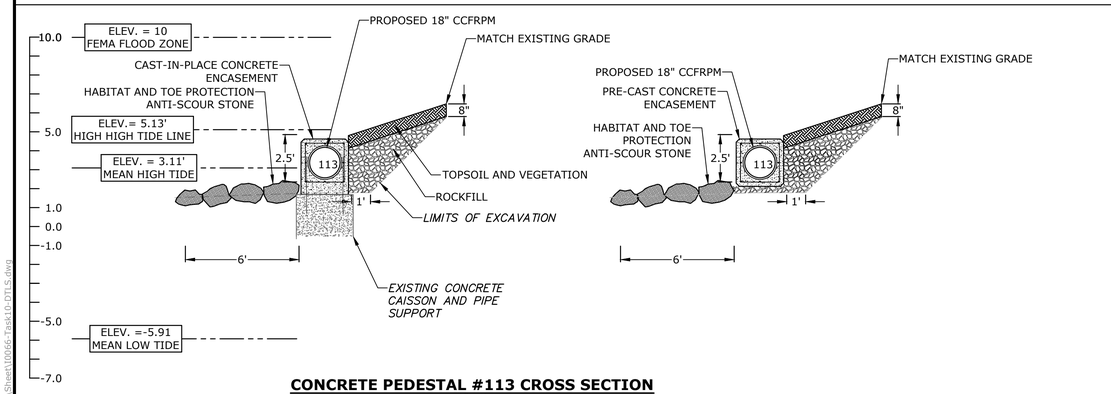
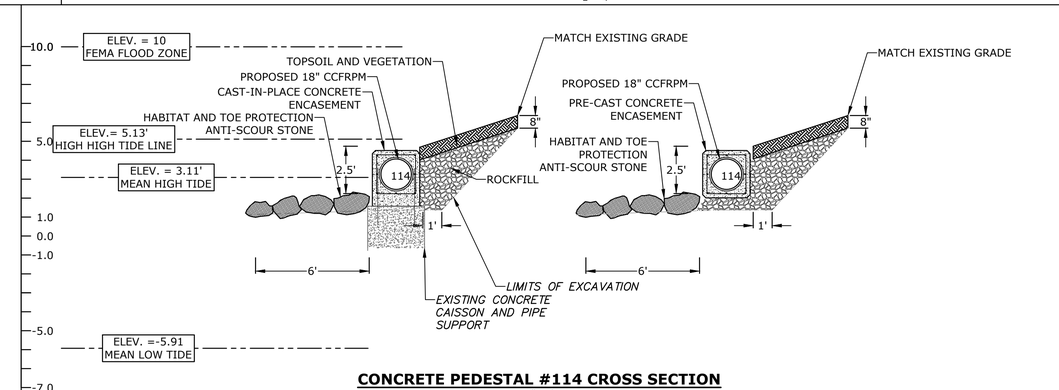
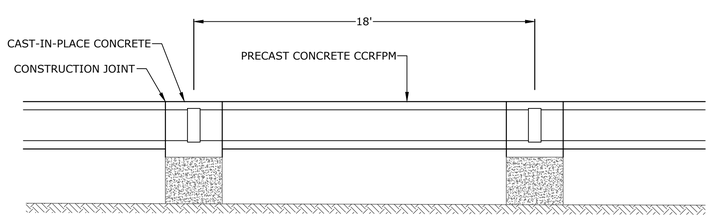


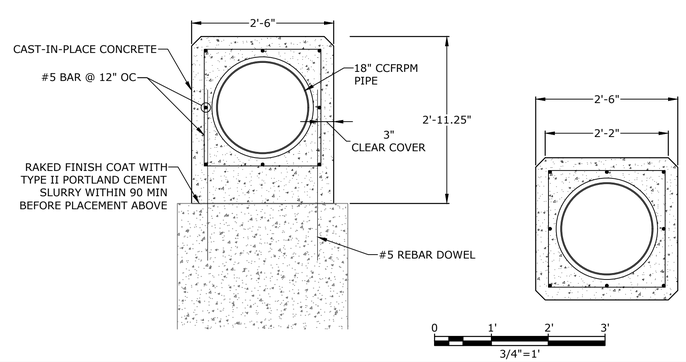
CONCRETE PEDESTAL #113 CROSS SECTION
1"=4'



CONCRETE PEDESTAL #114 CROSS SECTION
1"=4'



INTERCEPTOR PRECAST TO CAST-IN-PLACE CONNECTION DETAIL
1"=4'



NOTE:
1. DOWEL DRILL HOLE TO BE AS RECOMMENDED BY EPOXY RESIN MANUFACTURER TO DEVELOP FULL STRENGTH OF DOWEL, ASSUME 3000 PSI CONCRETE. DEVELOPMENT LENGTH IN NEW CONCRETE TO BE 24"
2. ALL REBAR TO BE HOT DIPPED GALVANIZED

NOTES:
1. ELEVATIONS AND SLOPES ARE APPROXIMATE BASED ON TOWN PROVIDED SURVEY AND LIMITED TAPE MEASUREMENTS ALONG PIPE.
2. CONTRACTOR AND OWNER TO COORDINATE ON FINAL RESTORATION PLAN.
3. TOPSOIL AND ROCKFILL RESTORATION TO EXTEND 5 FEET PAST VERTICAL FACE OF CAISSON OPPOSITE OF RIVER. CONTRACTOR TO MATCH EXISTING GRADE AT LIMITS OF WORK.
4. CONTRACTOR SHALL KEEP EXCAVATION EQUIPMENT AT A MINIMUM DISTANCE OF 10' INLAND OF INTERCEPTOR PIPE.

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INTERCEPTOR REHABILITATION - DETAILS 2

SCALE: AS SHOWN

C-105
SHEET 7 OF 17

Last Saved: 5/21/2020
Plotted On:May 21, 2020-3:20pm By: GMM
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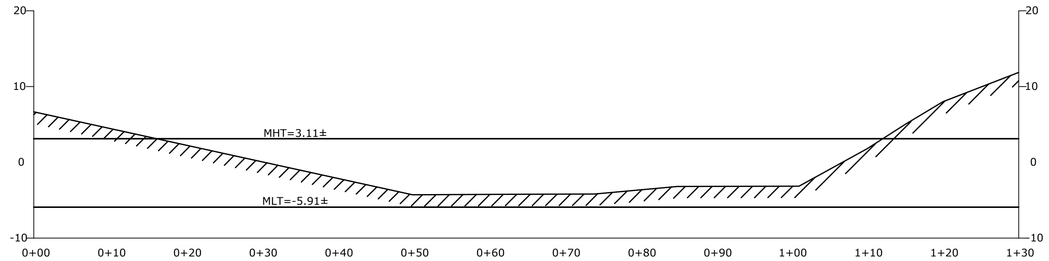
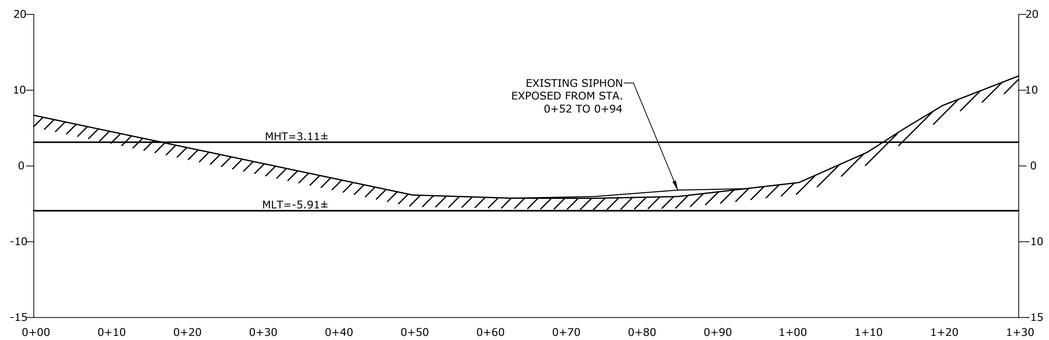


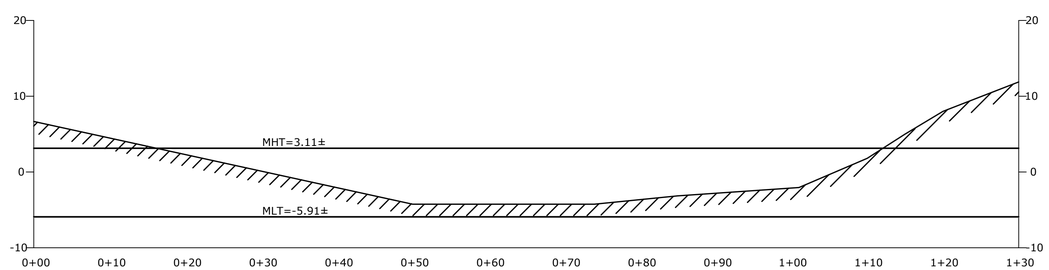
RIVER SECTION 10' UP RIVER OF SIPHON

SCALE IN FEET
0 10' 20'
GRAPHIC SCALE



RIVER SECTION AT SIPHON

SCALE IN FEET
0 10' 20'
GRAPHIC SCALE



RIVER SECTION 10' DOWN RIVER OF SIPHON

SCALE IN FEET
0 10' 20'
GRAPHIC SCALE

NOTES:
1. STATIONING AND ELEVATIONS IN FEET WITH STA. 0+00 AT CENTER OF UPSTREAM SMH (SMH 34) COVER.
2. ELEVATIONS TAKEN BY AUTO LEVEL, ROD AND STATIONING BY TAPE. VERTICAL DATUM BASED ON RIM ELEVATION OF SMH 34 ARCHIVE DATA IN NAVD88.
3. WATER ELEVATIONS VARY WITH RIVER FLOW AND TIDES.
4. TIDE ELEVATIONS ACCORDING TO PLUM ISLAND SOUTH TIDE GAGE SEPTEMBER 2017-SEPTEMBER 2018.

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APPROVED:	SES, IM

EXISTING SIPHON SECTIONS

SCALE: AS SHOWN

C-106
SHEET 8 OF 17

Last Saved: 5/21/2020
Plotted On:May 26, 2020-2:32pm By: GNM
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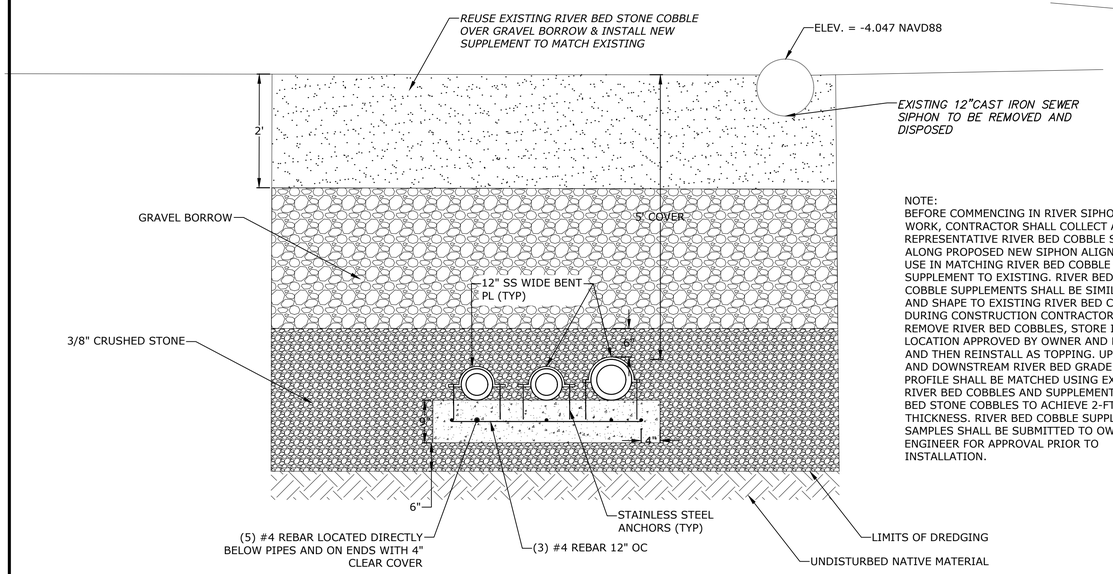
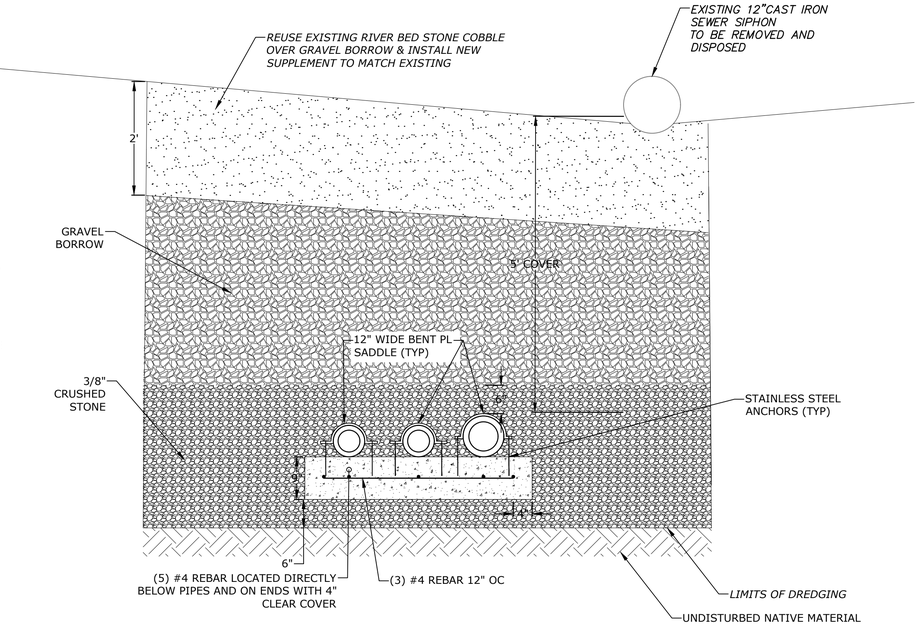


NOTE:
BEFORE COMMENCING IN RIVER SIPHON RELATED WORK, CONTRACTOR SHALL COLLECT A REPRESENTATIVE RIVER BED COBBLE SAMPLE ALONG PROPOSED NEW SIPHON ALIGNMENT FOR USE IN MATCHING RIVER BED COBBLE SUPPLEMENT TO EXISTING. RIVER BED STONE COBBLE SUPPLEMENTS SHALL BE SIMILAR IN SIZE AND SHAPE TO EXISTING RIVER BED COBBLES. DURING CONSTRUCTION CONTRACTOR SHALL REMOVE RIVER BED COBBLES, STORE IN A LOCATION APPROVED BY OWNER AND ENGINEER, AND THEN REINSTALL AS TOPPING. UPSTREAM AND DOWNSTREAM RIVER BED GRADE AND PROFILE SHALL BE MATCHED USING EXISTING RIVER BED COBBLES AND SUPPLEMENTAL RIVER BED STONE COBBLES TO ACHIEVE 2-FT TOPPING THICKNESS. RIVER BED COBBLE SUPPLEMENT SAMPLES SHALL BE SUBMITTED TO OWNER AND ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.

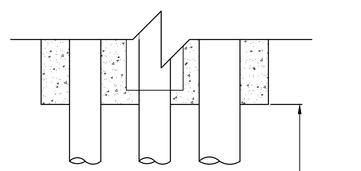
SIPHON CROSS SECTION A-A STA. 0+74.00 (SHEET C-102)

0 1' 2' 3'
3/4"=1'

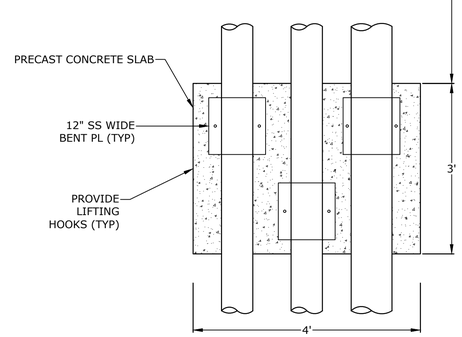


SIPHON CROSS SECTION B-B STA. 0+85.00 (SHEET C-102)

0 1' 2' 3'
3/4"=1'



PROVIDE 6' SPACING BETWEEN ADJACENT SUPPORTS



SIPHON PLAN VIEW

0 1' 2' 3'
3/4"=1'

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Ipswich, Massachusetts

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APPROVED:	SES, IM

PROPOSED SIPHON SECTIONS

SCALE: AS SHOWN

C-107
SHEET 9 OF 17

Last Saved: 5/21/2020
Plotted On:May 21, 2020-3:37pm By: GNM
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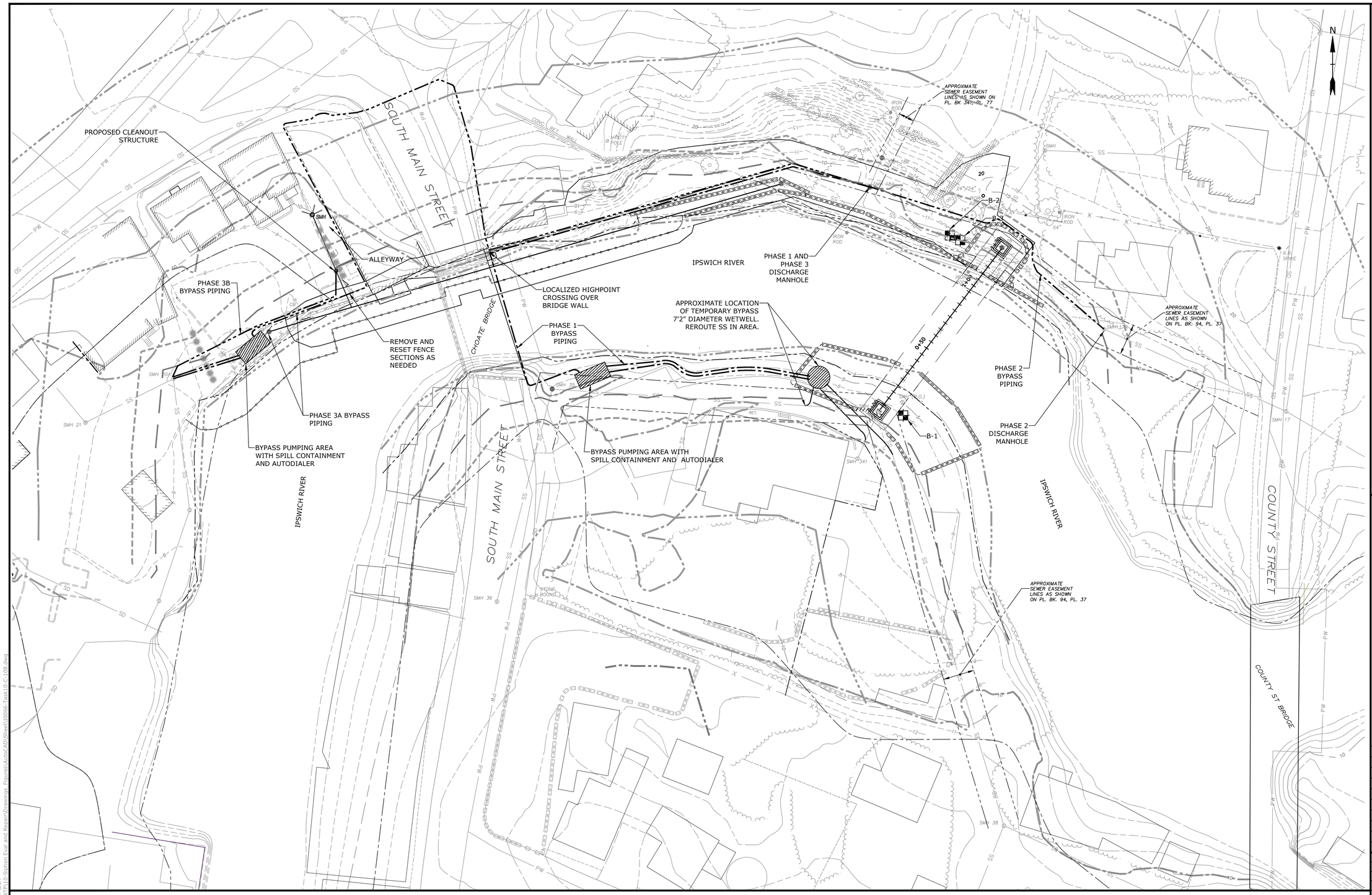

NOTE:
1. TEMPORARY BYPASS SYSTEM SHOWN SCHEMATICALLY. REFER TO SECTION 01580 FOR REQUIREMENTS.
2. PHASE 2 BYPASS PIPING INCLUDES THE BYPASS PIPING REQUIRED FOR PHASE 1 AND ADDITIONAL PIPING TO DISCHARGE TO SMH 17A.
3. PHASE 3A AND 3B TEMPORARY BYPASS IS SUBJECT TO THE COMPLETION OF THE MAINLINE AND STRUCTURE REPLACEMENTS IN THE ALLEYWAY.
4. ALL BYPASS PIPING SHALL HAVE SECONDARY CONTAINMENT.
5. THE CONTRACTOR SHALL USE CARE AND ALL PRECAUTIONS TO PROTECT CHOATE BRIDGE DURING THE INSTALLATION OF BYPASS PIPING. NO BYPASS PUMPING PIPING OR ANCILLARY EQUIPMENT SHALL ATTACH DIRECTLY TO THE BRIDGE OR CAUSE ANY DAMAGE.

LEGEND:

PHASE 1 TEMPORARY BYPASS PUMPING

PHASE 2 TEMPORARY BYPASS PUMPING

PHASE 3A AND 3B TEMPORARY BYPASS PUMPING

SCALE IN FEET
0 30' 60'
GRAPHIC SCALE

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TEMPORARY BYPASS PUMPING PLAN

SCALE: 1"=30'

C-108
SHEET 10 OF 17

Last Saved: 5/22/2020
Plotted On:May 22, 2020-3:59pm By: GNM
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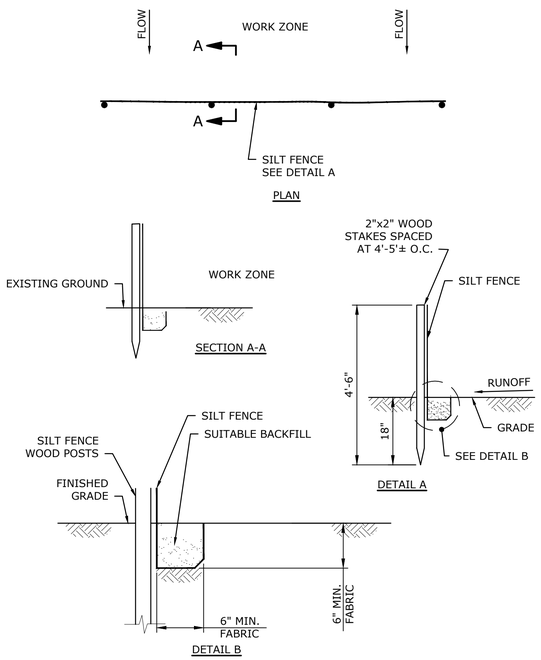
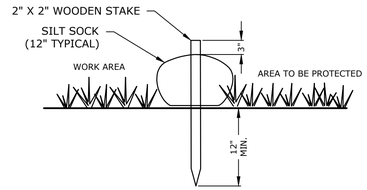
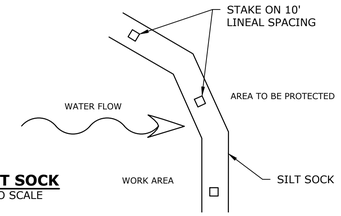


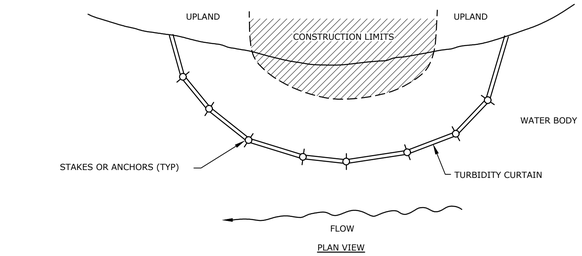
SILTATION FENCE
NO SCALE

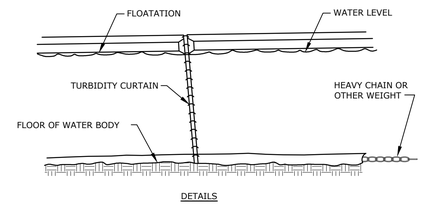


NOTES:
1. SILT SOCK SHALL BE SILT SOXX BY FILTREXX OR APPROVED EQUAL.
2. SILT SOCK SHALL BE FILLED WITH FILTERMEDIA BY FILTREXX OR APPROVED EQUAL.
3. WHERE TWO SILT SOCKS ARE JOINED, A MINIMUM OF 2 FEET OF OVERLAP SHALL BE MAINTAINED.
4. SILT SOCKS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
5. CONTRACTOR TO INSTALL SILT SOCK IN J-HOOK OR SMILE CONFIGURATION TO LIMIT CONCENTRATION OF STORMWATER RUNOFF AT A SINGLE DISHCARGE POINT.

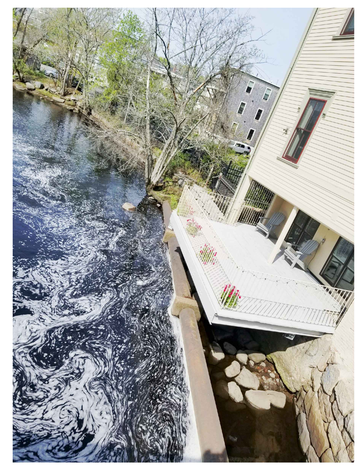


SILT SOCK
NO SCALE

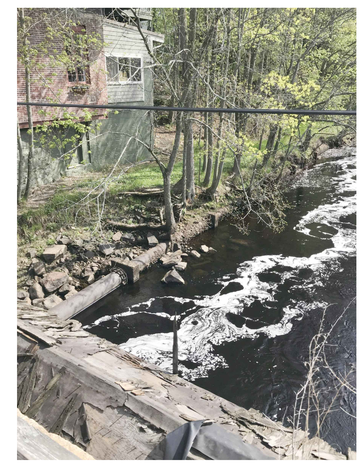




TURBIDITY CURTAIN DETAILS
NO SCALE

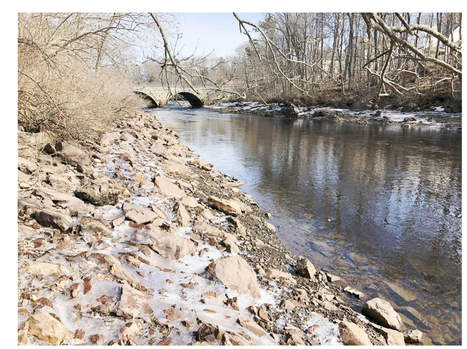


1
C-102

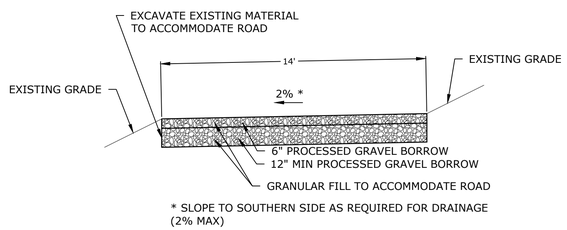


2
C-102

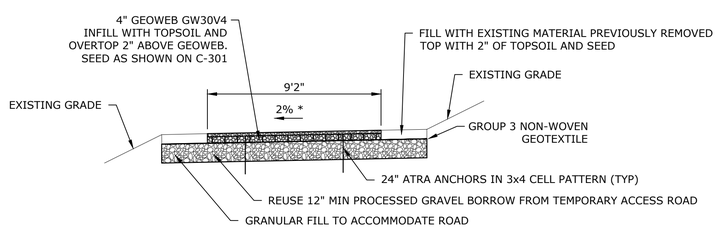
3
C-102



4
C-103



TEMPORARY ACCESS ROAD SECTION
NO SCALE



PERMANENT ACCESS ROAD SECTION
NO SCALE

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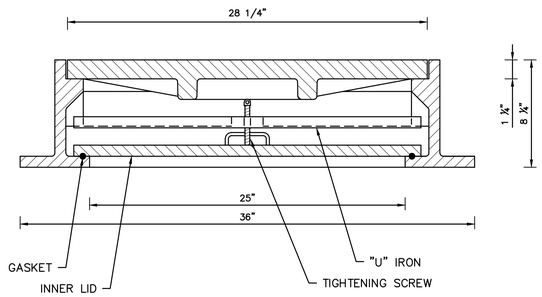
APPROVED:	SES, IM

CIVIL DETAILS - 1

SCALE: AS SHOWN

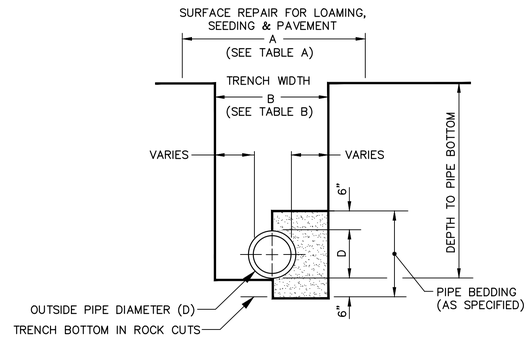
C-109
SHEET 11 OF 17



TOTAL WEIGHT: 570 LBS.

NOTE:
DIMENSIONS ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY EXISTING MANHOLE DIMENSIONS. MODIFY AND REPAIR MANHOLE AS NECESSARY TO ACCOMMODATE NEW WATERTIGHT MANHOLE COVER.

WATERTIGHT MANHOLE FRAME & COVER
NO SCALE

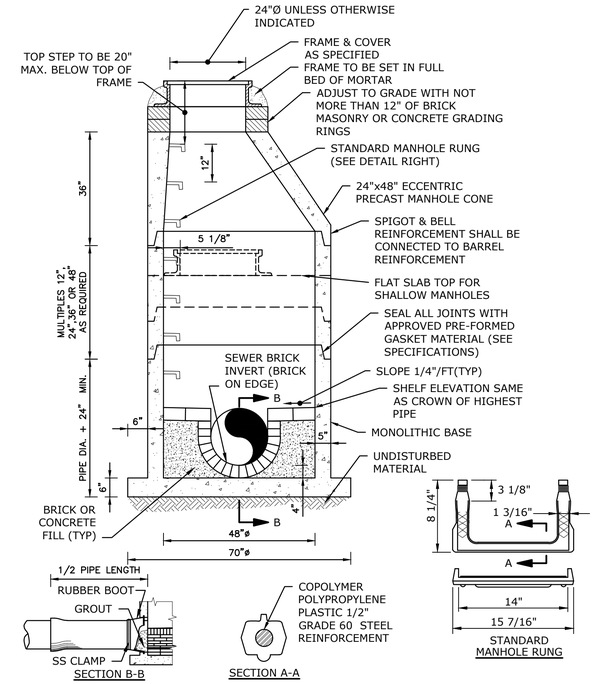


TYPICAL TRENCH SECTION

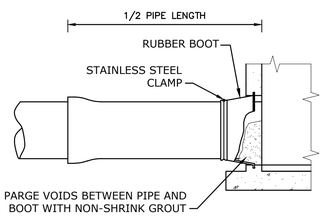
TABLE A – MAXIMUM SURFACE REPAIR PAY WIDTHS (SEE NOTE)			
OUTSIDE PIPE DIAMETER 0 – 24"		OUTSIDE PIPE DIAMETER GREATER THAN 24"	
TEMPORARY REPAIR (SEE NOTE 2)	PERMANENT REPAIR (SEE NOTE 3)	TEMPORARY REPAIR (SEE NOTE 2)	PERMANENT REPAIR (SEE NOTE 3)
6'–6" MAX.	8'–6" MAX.	D + 4'–0" MAX.	D + 6'–0" MAX.
TABLE B – MAXIMUM TRENCH EXCAVATION PAY WIDTHS (SEE NOTE)			
OUTSIDE PIPE DIAMETER 0 – 24"		OUTSIDE PIPE DIAMETER GREATER THAN 24"	
5'–0"		D + 3'–0"	

NOTE:
1. THE PAYLINE DIMENSIONS SHOWN REPRESENT THE MAXIMUM PAYLINE LIMITS TO BE PAID. WHEN THE ACTUAL SURFACE REPAIR OR TRENCH WIDTH IS LESS, THE ACTUAL WIDTH SHALL BE PAID FOR AT THE APPLICABLE UNIT PRICE.
2. INCLUDES TEMPORARY PAVEMENT PATCHES.
3. INCLUDES PERMANENT REPAIRS FOR DRIVEWAYS, PARKING LOTS, LAWN AREAS (LOAM & SEED), AND CURBS.

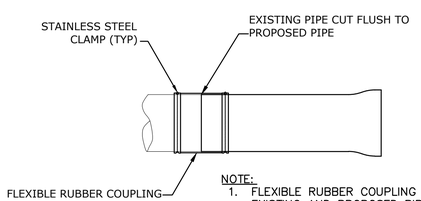
TRENCH PAYLINES
NO SCALE



48" PRECAST SANITARY SEWER MANHOLE
NO SCALE

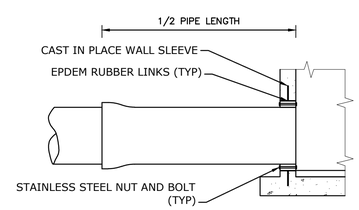


RUBBER BOOT CONNECTION
NO SCALE

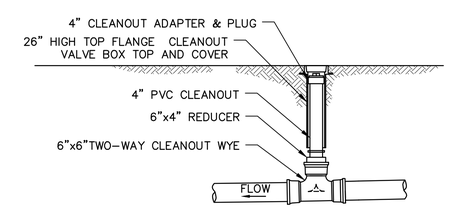


NOTE:
1. FLEXIBLE RUBBER COUPLING SHALL BE SIZED TO FIT THE EXISTING AND PROPOSED PIPE SIZE AND MATERIAL IN ORDER TO MATCH PIPE INVERTS.

FLEXIBLE RUBBER COUPLING CONNECTION
NO SCALE



WATER TIGHT MECHANICAL RUBBER SEAL WITH WALL SLEEVE
NO SCALE



CLEANOUT STRUCTURE
NO SCALE

Tighe&Bond
Engineers | Environmental Specialists

100% DRAWING SET

Ipswich River Sewer Interceptor and Siphon Risk Mitigation and Resiliency Improvements Project

Town of Ipswich

Ipswich, Massachusetts

MARK	DATE	DESCRIPTION
C	5/22/2020	100% DRAWING SET
B	3/4/2020	REVISION
A	8/8/2019	NOI SUBMITTAL

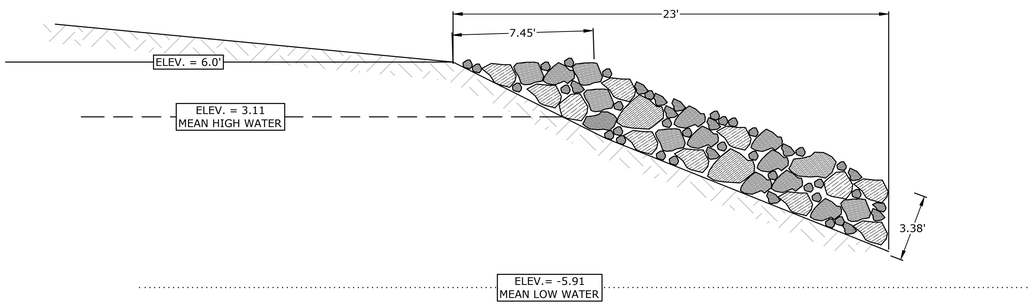
PROJECT NO:	I0066-10
DATE:	5/22/20
FILE:	I0066-Task10-DTLS.dwg
DRAWN BY:	JAK
CHECKED:	DOR, DPR
APPROVED:	SES, IM

CIVIL DETAILS - 2

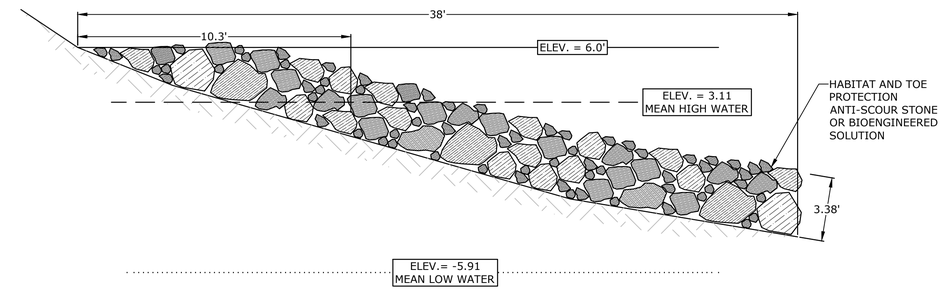
SCALE: AS SHOWN

C-110
SHEET 12 OF 17

Last Saved: 5/21/2020
Plotted On:May 21, 2020-3:40pm By: GMM
Tighe & Bond:J:\I\I0066 Ipswich WWTP\10-Siphon Eval and Repair\Drawings_Figures\AutoCAD\Sheet\I0066-Task10-DTLS.dwg



DOWNSTREAM REVETMENT
STA 0+00 (SHEET C-103)



DOWNSTREAM REVETMENT
STA 0+75 (SHEET C-103)

5
C-103

6
C-103

7
C-103

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Ipswich River Sewer Interceptor and Siphon Risk Mitigation and Resiliency Improvements Project

Town of Ipswich

Ipswich, Massachusetts

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A	8/8/2019	NOI SUBMITTAL

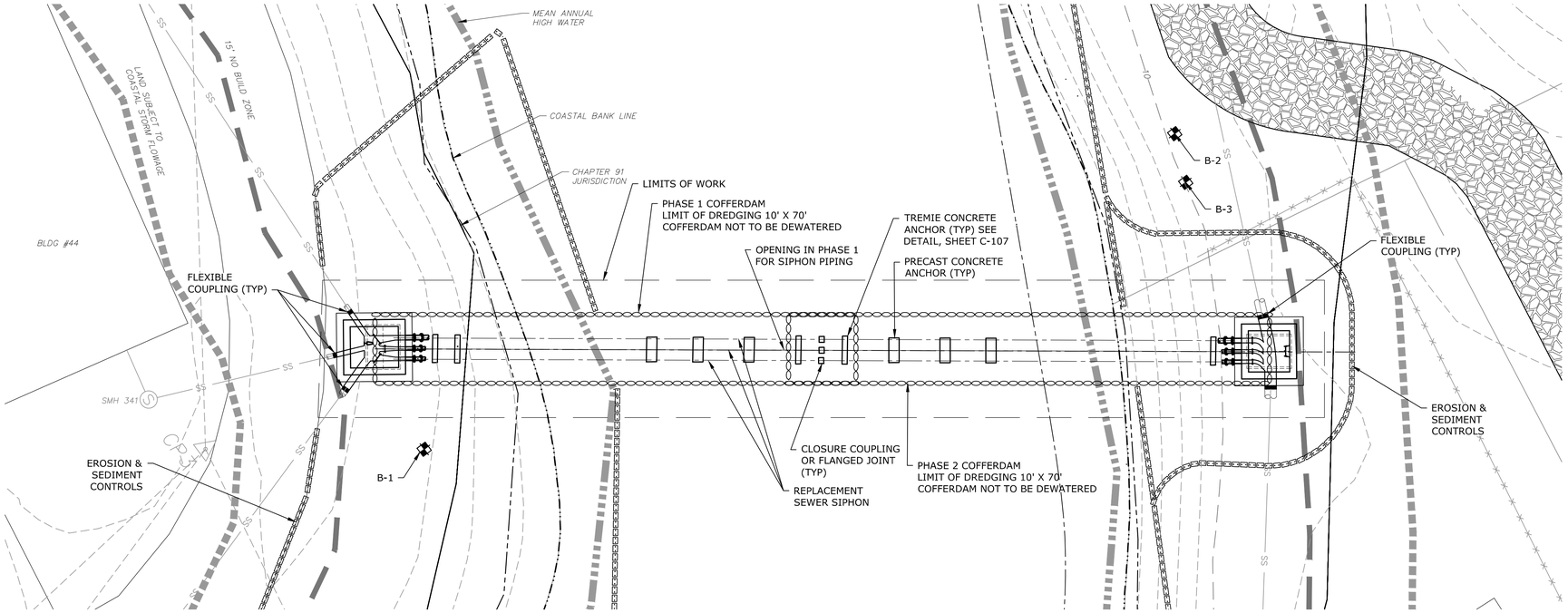
PROJECT NO:	I0066-10
DATE:	5/22/20
FILE:	I0066-Task10-DTLS.dwg
DRAWN BY:	SAT
CHECKED:	DOR, DPR
APPROVED:	SES, IM

DOWNSTREAM REVETMENT DETAILS

SCALE: 1"=4'

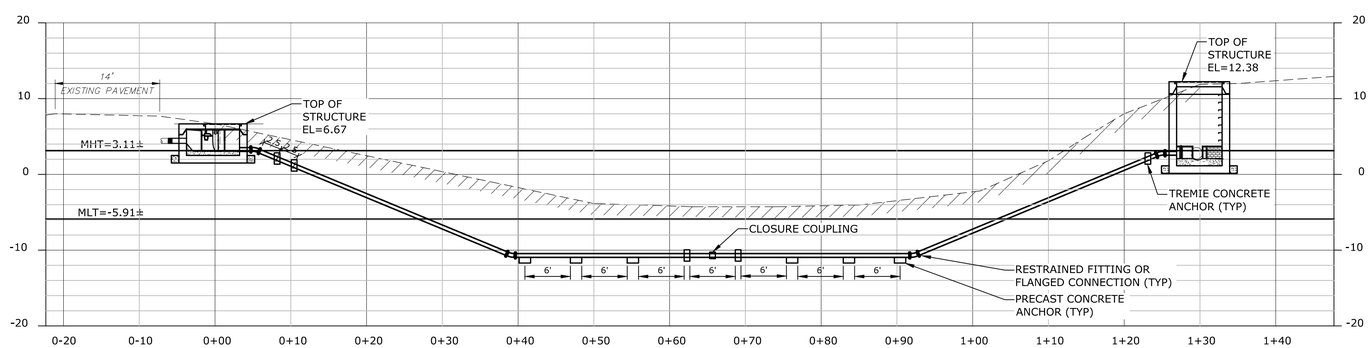
C-111
SHEET 13 OF 17

Last Saved: 5/21/2020
Plotted On:May 21, 2020-3:43pm By: GNM
Tighe & Bond:J:\I\I0066 Ipswich WWTP\10-Siphon Eval and Repair\Drawings_Figures\AutoCAD\Sheet\I0066-Task10-DTLS.dwg



PLAN AT SIPHON
1"=10'

NOTES:
1. PLEASE SEE SPEC SECTION 00300 - GEOTECHNICAL DATA FOR BORINGS AT LOCATION 1,2, AND 3.



RIVER SECTION AT SIPHON
1"=10'

SCALE IN FEET
0 10' 20'
GRAPHIC SCALE

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Ipswich River Sewer Interceptor and Siphon Risk Mitigation and Resiliency Improvements Project

Town of Ipswich

Ipswich, Massachusetts

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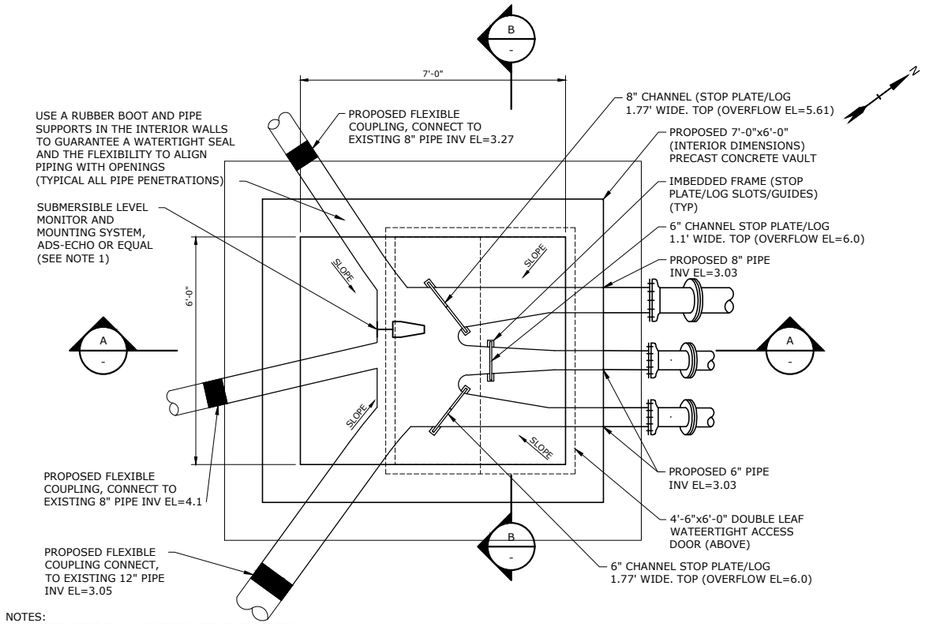
PROJECT NO:	I0066-10
DATE:	5/22/20
FILE:	I0066-Task10-C-201.dwg
DRAWN BY:	TMP
CHECKED:	DOR, DPR
APPROVED:	SES, IM

SIPHON REPLACEMENT SITE PLAN AND PROFILE

SCALE: 1"=10'

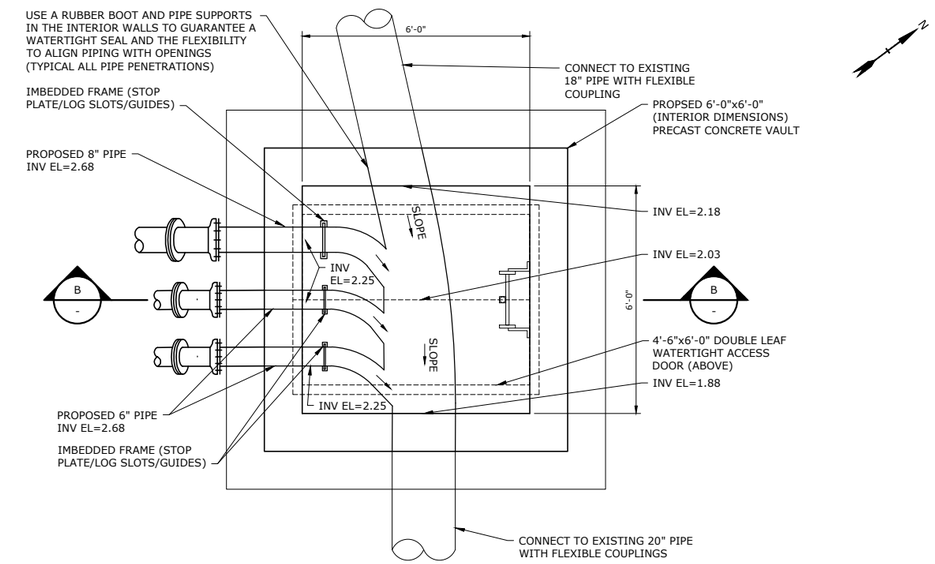
C-201
SHEET 14 OF 17

Last Saved: 5/19/2020
Plotted On:May 21, 2020-5:43pm By: GNM
Tighe & Bond:J:\I\I0066 Ipswich WWTP\10-Siphon Eval and Repair\Drawings_Figures\AutoCAD\Sheet\I0066-Task10-C-201.dwg

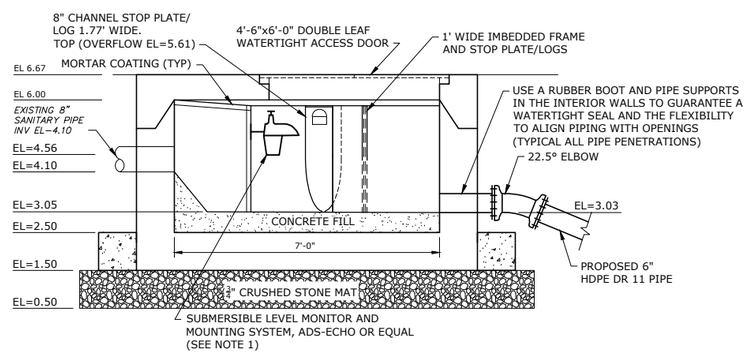


NOTES:
1. CONTRACTOR SHALL COORDINATE LEVEL SENSOR ELEVATIONS WITH MANUFACTURER, OWNER, AND ENGINEER.

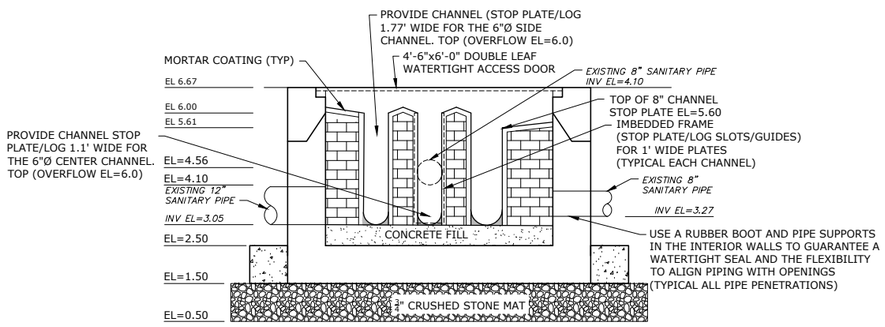
INFLUENT VAULT PLAN
1/2"=1'-0"



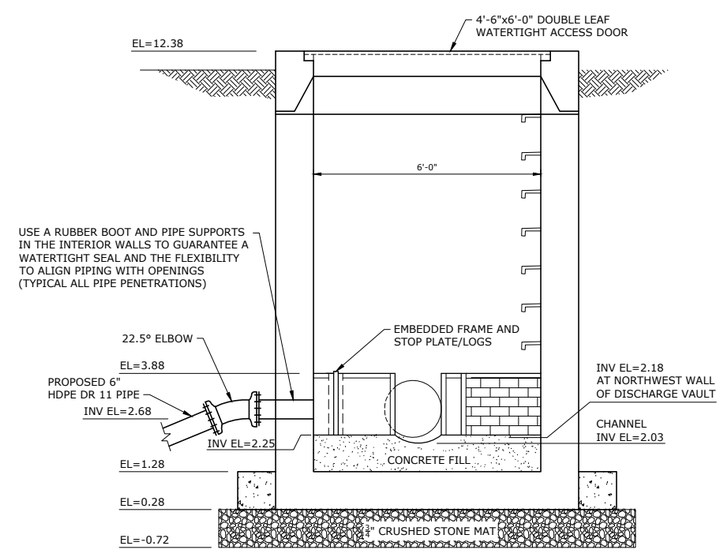
DISCHARGE VAULT PLAN
1/2"=1'-0"



SECTION A
1/2"=1'-0"



SECTION B
1/2"=1'-0"



SECTION B
1/2"=1'-0"

0 1' 2' 4'
SCALE: 1/2"=1'-0"

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Town of Ipswich

Ipswich, Massachusetts

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A	8/8/2019	NOI SUBMITTAL

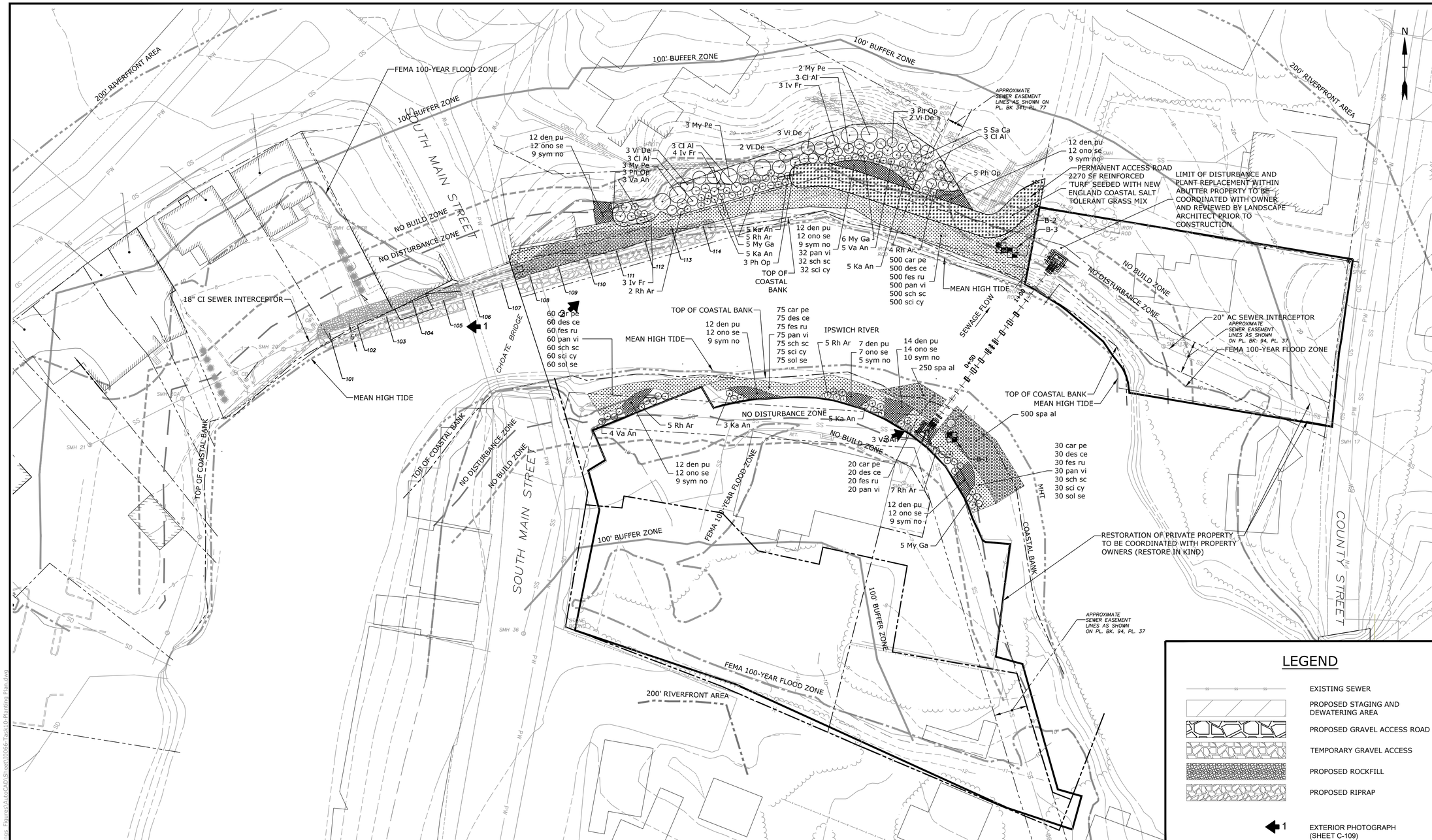
PROJECT NO:	I0066-10
DATE:	5/22/20
FILE:	I0066-Task10-SIPH-NS Suggested_C-202.dwg
DRAWN BY:	TMP
CHECKED:	DOR, DPR
APPROVED:	SES, IM

SIPHON MANHOLE PLANS AND SECTIONS

SCALE: AS SHOWN

C-202
SHEET 15 OF 17

Last Saved: 5/19/2020
Plotted On:May 19, 2020-6:09pm By: GMM
Tighe & Bond:J:\I\I0066 Ipswich WWTP\10-Siphon Eval and Repair\Drawings_Figures\AutoCAD\Sheet\I0066-Task10-SIPH-NS Suggested_C-202.dwg



LEGEND

- EXISTING SEWER
- PROPOSED STAGING AND DEWATERING AREA
- PROPOSED GRAVEL ACCESS ROAD
- TEMPORARY GRAVEL ACCESS
- PROPOSED ROCKFILL
- PROPOSED RIPRAP
- 1 EXTERIOR PHOTOGRAPH (SHEET C-109)

PHASE 2 COFFERDAM

REFERENCE PLANS:
1. "SANITARY SEWER PLAN VICINITY OF SOUTH MAIN STREET TO COUNTY STREET" DATED 3/14/2018 REVISED 5/29/2018 IN FEET RELATIVE TO NAVD88. IN RIVER BATHYMETRY NOT PROVIDED AND WATER LEVELS NOT GIVEN.
2. "PLAN ACCOMPANYING PETITION OF TOWN OF IPSWICH TO REPLACE FILL AND SEWER PIPELINE WITH CROSSING IN THE IPSWICH RIVER, IPSWICH, MASS" DATED 4/27/1959.

NOTE:
1. OMIT SHEET PILE UNDER BRIDGE DUE TO OVERHEAD SPACE CONSTRAINT
2. SEE SHEET C-109 FOR EXTERIOR PHOTOGRAPHS
3. SUPPLEMENTAL OFF-SITE SURVEY, PLANTING AND MAINTENANCE ON PROPERTY OWNED BY GALE ANDERSON LOCATED ON THE NORTHEAST SIDE OF RIVER AT THE SIPHON ENTER INTERCEPTOR IS INCLUDED AS PART OF THE SCOPE OF THIS CONTRACT WITH THE SAME REQUIREMENTS FOR PLANTING, SOILS AND MAINTENANCE AS THE ON-SITE WORK. SEE SPEC SECTION 02900 - LANDSCAPING

PLANT SCHEDULE

SHRUBS						
Tag	Qty	Scientific Name	Common Name	Size	Spacing	Comments
Cl Al	12	Clethra alnifolia	Sweet Pepperbush	3'-4' HT	5' O.C.	
Iv Fr	10	Iva frutescens	Marsh Elder	3'-4' HT	6' O.C.	
Ka An	23	Kalmia angustifolium	Sheep Laurel	2'-3' HT	4' O.C.	
My Ga	16	Myrica gale	Sweetgale	2'-3' HT	4' O.C.	
My Pe	7	Myrica pensylvanica	Northern Bayberry	3'-4' HT	10' O.C.	
Ph Op	14	Physocarpus opulifolius	Eastern Ninebark	3'-4' HT	5' O.C.	
Rh Ar	29	Rhus aromatica 'Gro Low'	Fragrant Sumac	2'-3' HT	4' O.C.	
Sa Ca	5	Sambucus canadensis	Elderberry	3'-4' HT	5' O.C.	
Va An	15	Vaccinium angustifolium	Low Bush Blueberry	2'-3' HT	4' O.C.	
Vi De	10	Viburnum dentatum	Arrowwood Viburnum	3'-4' HT	8' O.C	

PLANT SCHEDULE

GRASSES/HERBACEOUS PERENNIALS/FERNS						
car pe	685	Carex pensylvanica	Pennsylvania Sedge	plug	15" O.C.	
den pu	93	Dennstaedtia punctilobula	Hay Scented Fern	1 GAL	24" O.C.	
des ce	685	Deschampsia cespitosa	Tufted Hairgrass	plug	15" O.C.	
fes ru	685	Festuca rubra	Red Fescue	plug	15" O.C.	
ono se	93	Onoclea sensibilis	Sensitive Fern	1 GAL	24" O.C.	
pan vi	717	Panicum virgatum	Switchgrass	plug	15" O.C.	
sch sc	697	Schizachyrium scoparium	Little Bluestem	plug	15" O.C.	
sci cy	697	Scirpus cyperinus	Wool Grass	plug	15" O.C.	
sol se	165	Solidago sempervirens	Seaside Goldenrod	plug	15" O.C.	
spa al	750	Spartina alterniflora	Smooth Cordgrass	plug	15" O.C.	
sym no	69	Symphyotrichum novae-angliae	New England Aster	1 GAL	30" O.C.	
	2270 SF	New England Coastal Salt Tolerant Grass Mix				

SCALE IN FEET 0 30' 60'
GRAPHIC SCALE

Tighe&Bond
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Ipswich River Sewer Interceptor and Siphon Risk Mitigation and Resiliency Improvements Project

Town of Ipswich

Ipswich, Massachusetts

MARK	DATE	DESCRIPTION
C	5/22/2020	100% DRAWING SET
B	3/4/2020	REVISION
A	8/8/2019	NOI SUBMITTAL

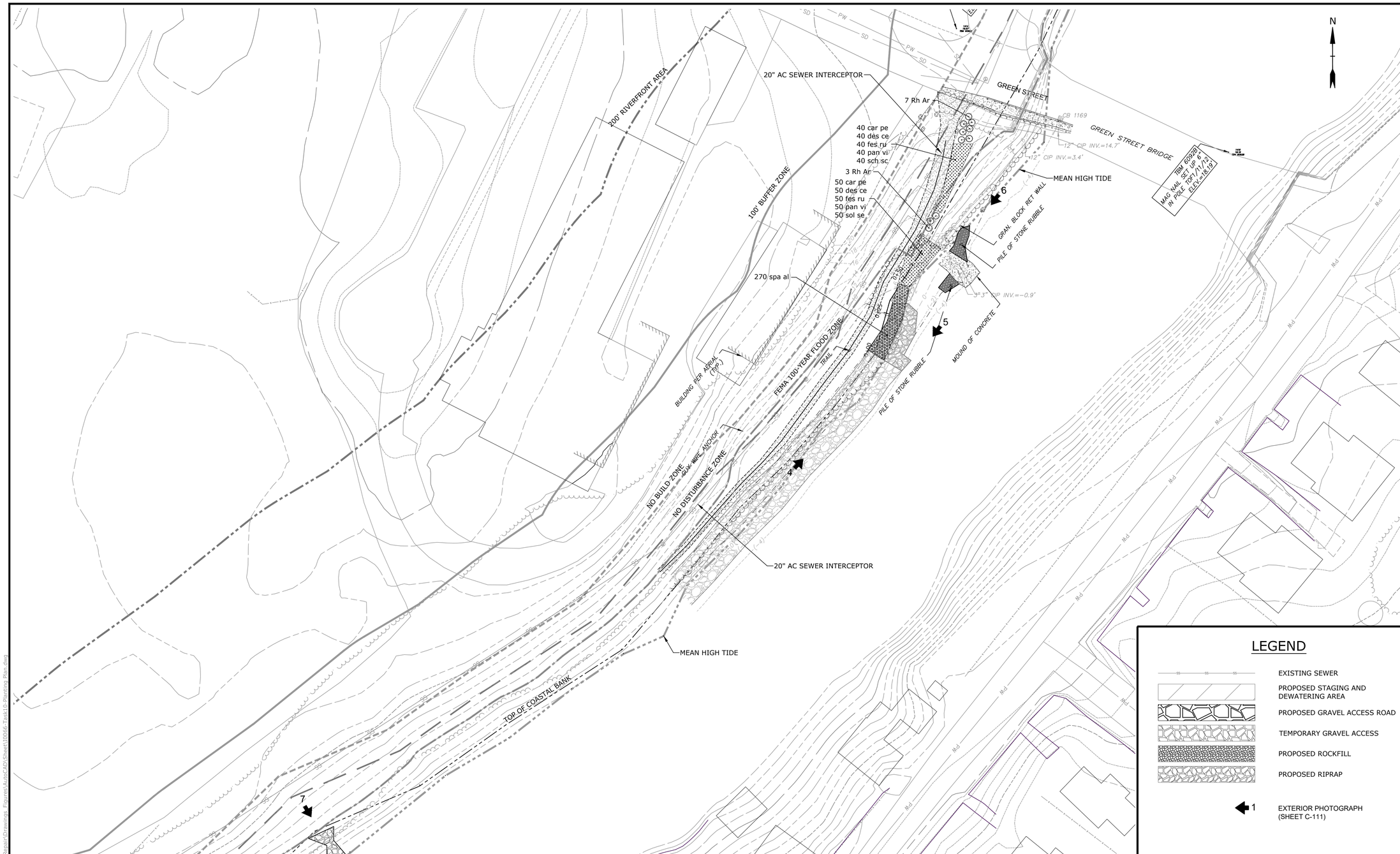
PROJECT NO:	I0066-10
DATE:	5/22/20
FILE:	I0066-Task10-Planting Plan.dwg
DRAWN BY:	LPT/JAK
CHECKED:	DOR, DPR
APPROVED:	SES, IM

PLANTING PLAN - SITE PLAN (1)

SCALE: 1"=30'

C-301
SHEET 16 OF 17

Last Saved: 5/19/2020
Plotted On:May 26, 2020-5:56pm By: GNM
Tighe & Bond:J:\I\I0066 Ipswich WWTP\10-Siphon Eval and Repair\Drawings_Figures\AutoCAD\Sheet\I0066-Task10-Planting Plan.dwg



LEGEND

- EXISTING SEWER
- PROPOSED STAGING AND DEWATERING AREA
- PROPOSED GRAVEL ACCESS ROAD
- TEMPORARY GRAVEL ACCESS
- PROPOSED ROCKFILL
- PROPOSED RIPRAP
- 1 EXTERIOR PHOTOGRAPH (SHEET C-111)

INCLUDED AS PART OF THE SCOPE OF THIS CONTRACT WITH THE SAME REQUIREMENTS I
PLANTING, SOILS AND MAINTENANCE AS THE ON-SITE WORK. SEE SPEC SECTION 02900
LANDSCAPING

REFERENCE PLANS:

1. "SANITARY SEWER PLAN VICINITY OF SOUTH MAIN STREET TO COUNTY STREET" DATED 3/14/2018 REVISED 5/29/2018 IN FEET RELATIVE TO NAVD88. IN RIVER BATHYMETRY NOT PROVIDED AND WATER LEVELS NOT GIVEN.
2. "PLAN ACCOMPANYING PETITION OF TOWN OF IPSWICH TO REPLACE FILL AND SEWER PIPELINE WITH CROSSING IN THE IPSWICH RIVER, IPSWICH, MASS" DATED

PLANT SCHEDULE

Tag	Qty	Scientific Name	Common Name	Size	Spacing	Comments
SHRUBS						
Rh Ar	10	Rhus aromatica 'Gro Low'	Fragrant Sumac	2'-3' HT	4' O.C.	
GRASSES/HERBACEOUS PERENNIALS/FERNS						
car pe	90	Carex pensylvanica	Pennsylvania Sedge	plug	15" O.C.	
des ce	90	Deschampsia cespitosa	Tufted Hairgrass	plug	15" O.C.	
fes ru	90	Festuca rubra	Red Fescue	plug	15" O.C.	
pan vi	90	Panicum virgatum	Switchgrass	plug	15" O.C.	
sch sc	40	Schizachyrium scoparium	Little Bluestem	plug	15" O.C.	
sol se	50	Solidago sempervirens	Seaside Goldenrod	plug	15" O.C.	
spa al	270	Spartina alterniflora	Smooth Cordgrass	plug	15" O.C.	

SCALE IN FEET
0 30' 60'
GRAPHIC SCALE

Tighe&Bond
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Ipswich River Sewer Interceptor and Siphon Risk Mitigation and Resiliency Improvements Project

Town of Ipswich

Ipswich, Massachusetts

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A	8/8/2019	NOI SUBMITTAL

PROJECT NO:	I0066-10
DATE:	5/22/20
FILE:	I0066-Task10-Planting Plan.dwg
DRAWN BY:	SAT
CHECKED:	DOR, DPR
APPROVED:	SES, IM

PLANTING PLAN - SITE PLAN (2)

SCALE: 1"=30'

C-302
SHEET 17 OF 17

Last Saved: 5/19/2020
Plotted On:May 20, 2020-6:00pm By: GNM
Tighe & Bond:J:\I\I0066 Ipswich WWTP\10-Siphon Eval and Repair\Drawings_Figures\AutoCAD\Sheet\I0066-Task10-Planting Plan.dwg