

AQUATIC INVASIVE SPECIES PREVENTION - BOAT WASHING FACILITIES DESIGN

BLACK RIVER HARBOR AND HAGERMAN LAKE RECREATIONAL FACILITIES
OTTAWA NATIONAL FOREST

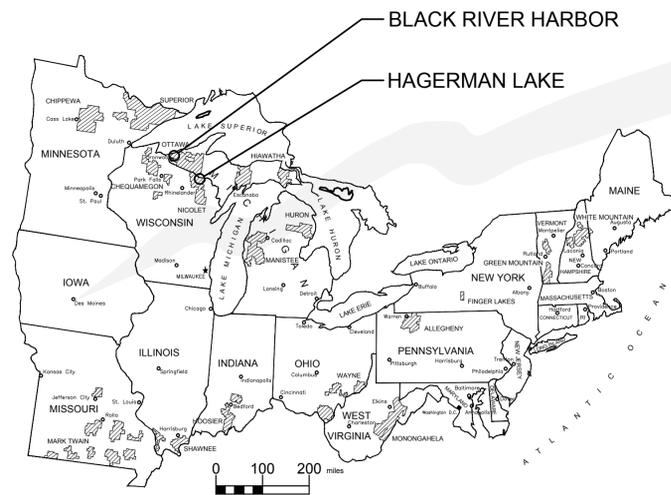
US DEPARTMENT OF AGRICULTURE FOREST SERVICE



CHEQUAMEGON BAY ENGINEERING, INC.
 ASHLAND, WI 211 6TH STREET WEST
 ASHLAND, WI 54806
 PHONE: (715) 682-6004
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FINAL

LOCATION MAP



PROJECT TEAM

CHEQUAMEGON BAY ENGINEERING, INC.

ASHLAND, WI
211 6TH STREET WEST
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SHEET INDEX

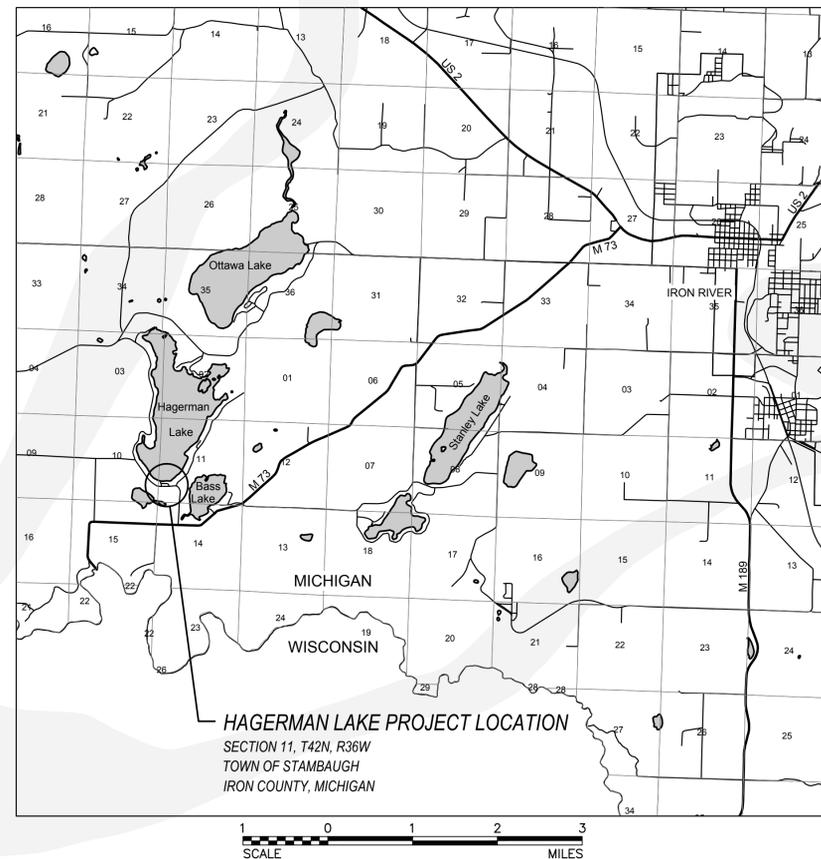
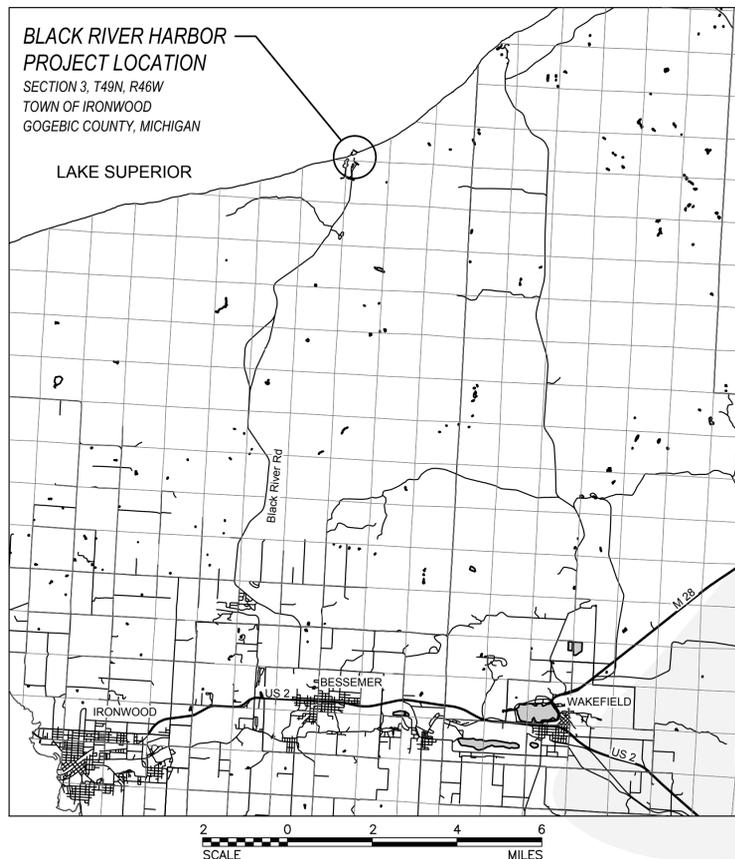
	SHEET NO.	SHEET TITLE	35% DESIGN REVIEW	95% DESIGN REVIEW	BID DOCUMENTS	REVISION 1	REVISION 2
1	G100	TITLE SHEET	3/10/2011	4/12/2011	4/29/2011		
2	C101	BLACK RIVER HARBOR SITE PLAN	3/10/2011	4/12/2011	4/29/2011		
3	C102	BLACK RIVER HARBOR PROFILES	3/10/2011	4/12/2011	4/29/2011		
4	C103	BLACK RIVER HARBOR LAYOUT PLAN		4/12/2011	4/29/2011		
5	C104	BLACK RIVER HARBOR GRADING PLAN		4/12/2011	4/29/2011		
6	C105	BLACK RIVER HARBOR DETAILS	3/10/2011	4/12/2011	4/29/2011		
7	C201	HAGERMAN LAKE SITE PLAN	3/10/2011	4/12/2011	4/29/2011		
8	C202	HAGERMAN LAKE LAYOUT & GRADING PLAN		4/12/2011	4/29/2011		
9	C301	MISCELLANEOUS CONSTRUCTION DETAILS	3/10/2011	4/12/2011	4/29/2011		
10	C302	SIT FENCE AND EROSION BALE INSTALLATION DETAILS			4/29/2011		
11	A101	EQUIPMENT AND STORAGE BUILDING PLAN	3/10/2011	4/12/2011	4/29/2011		
12	A102	BUILDING DETAILS & ELECTRICAL DIAGRAMS			4/29/2011		

DRAWING NOTES

CONTRACTOR IS RESPONSIBLE FOR PUBLIC AND PRIVATE UTILITY LOCATES PRIOR TO PERFORMING THE WORK OF THIS CONTRACT.

No.	Revision/Issue	Date
4		
3		
2		
1		

PROJECT SITE LOCATION MAP



PROJECT APPROVALS

IRON RIVER DISTRICT RANGER _____ DATE _____

BESSEMER DISTRICT RANGER _____ DATE _____

FOREST ENGINEER _____ DATE _____

FOREST SUPERVISOR _____ DATE _____

U.S. DEPARTMENT OF AGRICULTURE FOREST SERVICE REGION NINE

Project Name
Aquatic Invasive Species Prevention
Boat Washing Facilities Design
Black River Harbor and Hagerman Lake Recreational Sites
Ottawa National Forest
Bessemer and Iron River Ranger Districts

FINAL SUBMITTAL DOCUMENTS

Drawing Title
TITLE SHEET

Drawn J. SOLBERG	CBE Project No. 10-110
Checked J. SAJDAK	Drawing Sheet No. G100
CAD Archive No.	
Date 4-29-2011	Sheet 1 of 12
Plotter Scale as shown	

DRAWING NOTES

No.	Revision/Issue	Date
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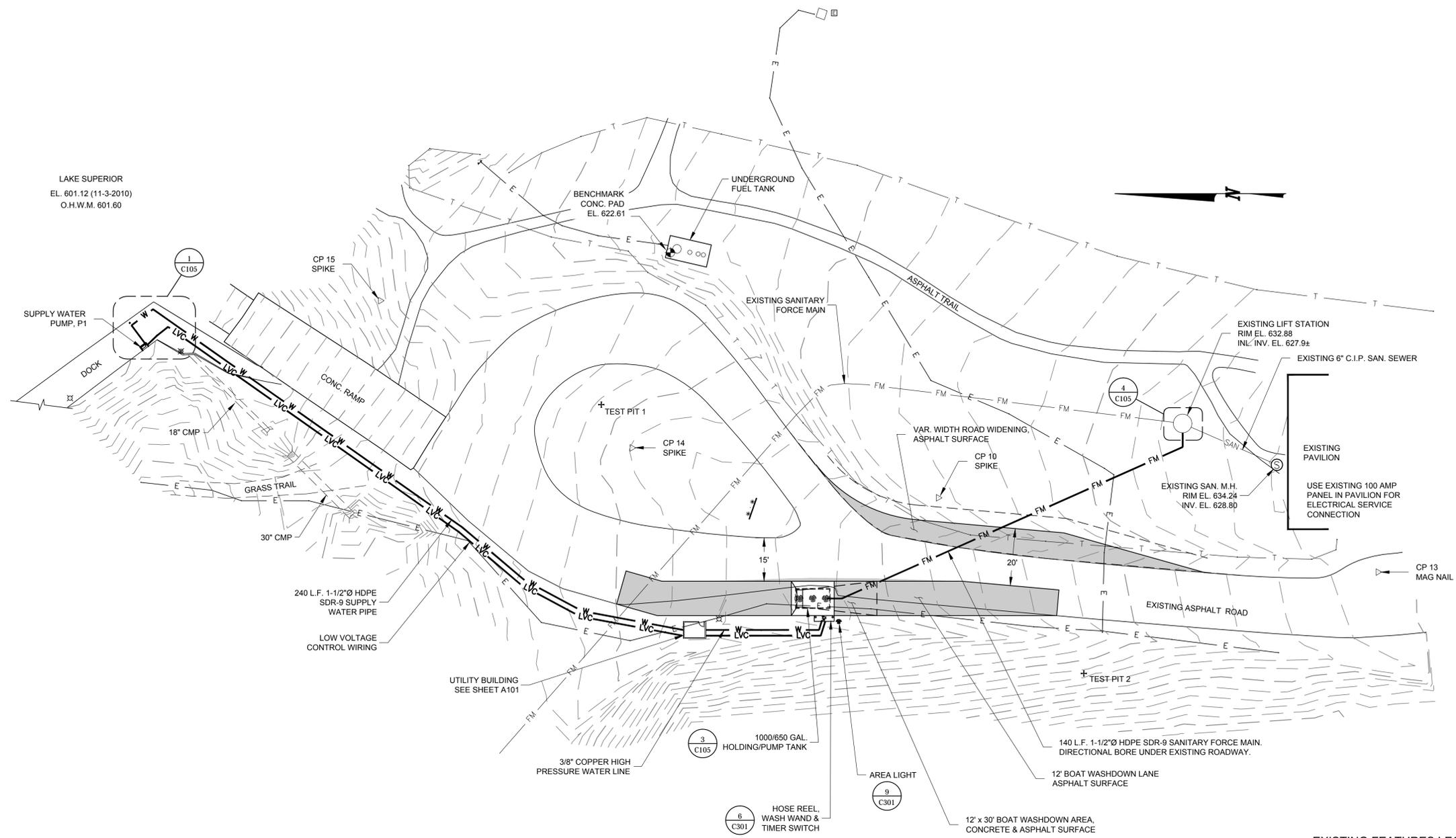


Project Name
Aquatic Invasive Species Prevention Boat Washing Facilities Design
 Black River Harbor and Hagerman Lake Recreational Sites
 Ottawa National Forest
 Bessemer and Iron River Ranger Districts

FINAL SUBMITTAL DOCUMENTS

Drawing Title
Black River Harbor Site Plan

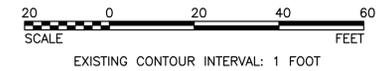
Drawn J. SOLBERG	CBE Project No. 10-110
Checked J. SAJDAK	Drawing Sheet No. C101
CAD Archive No.	
Date 4-29-2011	
Plotter Scale as shown	Sheet 2 of 12



- PROPOSED FEATURES LEGEND**
- W** — SUPPLY WATER PIPE
 - FM** — SANITARY FORCE MAIN
 - LVC** — LOW VOLTAGE CONTROL WIRING
 - NEW ASPHALT PAVEMENT**

EXISTING FEATURES LEGEND

- ⊞ — WOOD POLE
- +
- ⊞ — SOIL TEST PIT
- ⊞ — ELECT. PED.
- ⊞ — SANITARY M.H.
- ⊞ — SIGN
- ⊞ — HORIZONTAL CONTROL POINT
- ⊞ — BENCHMARK
- ⊞ — CULVERT
- E — BURIED ELECTRIC
- T — BURIED TELE.
- — SANITARY SEWER
- FM — SANITARY FORCE MAIN



DRAWING NOTES

No.	Revision/Issue	Date
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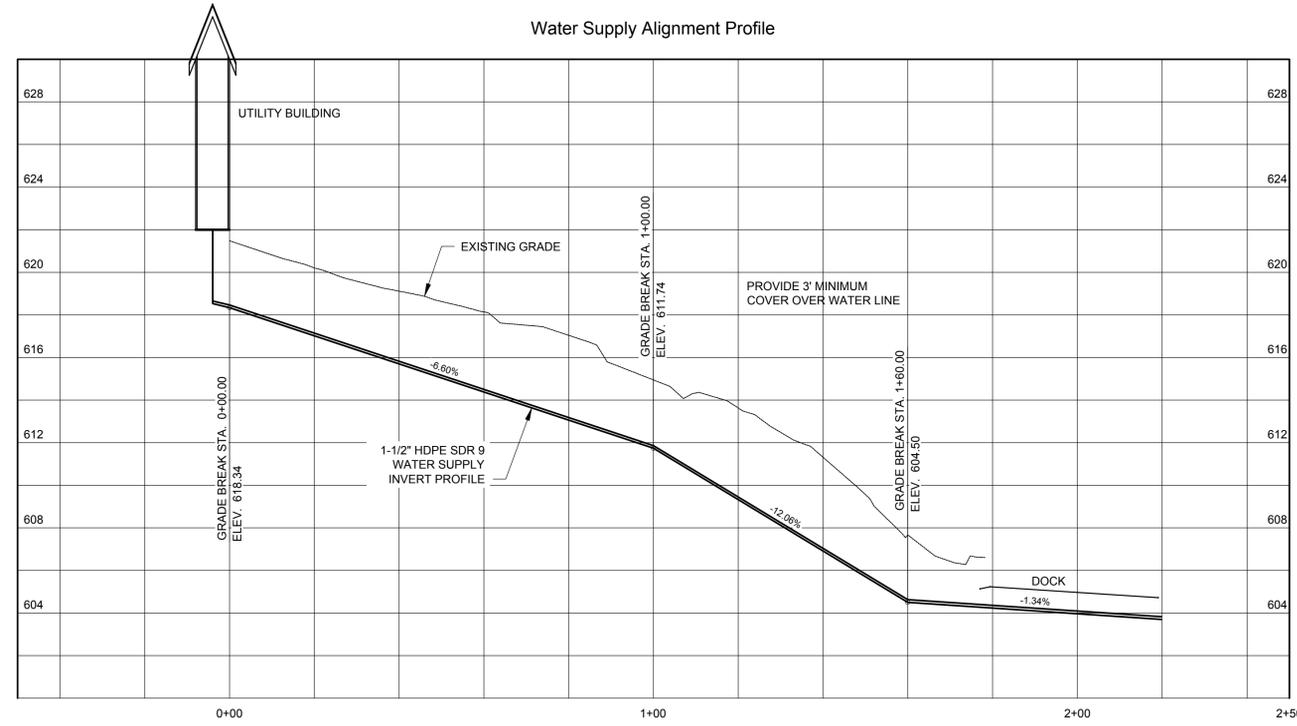
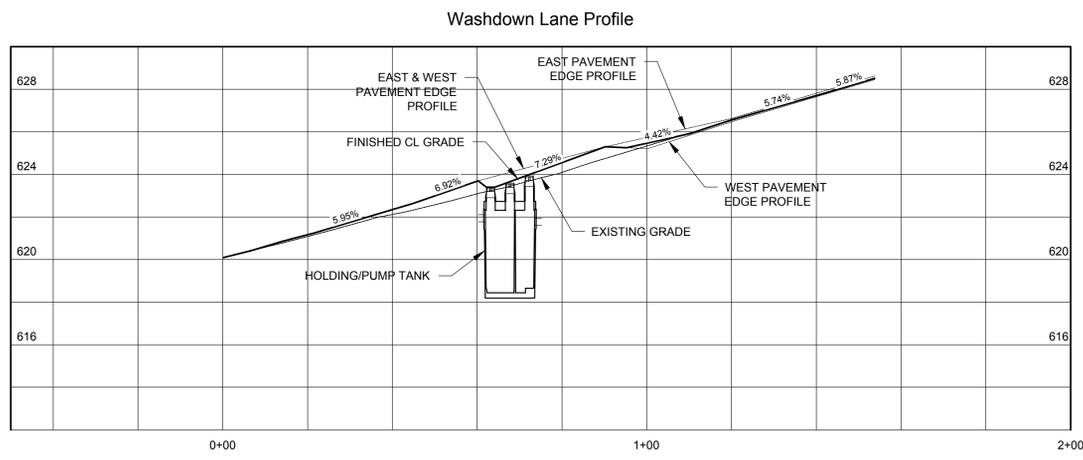
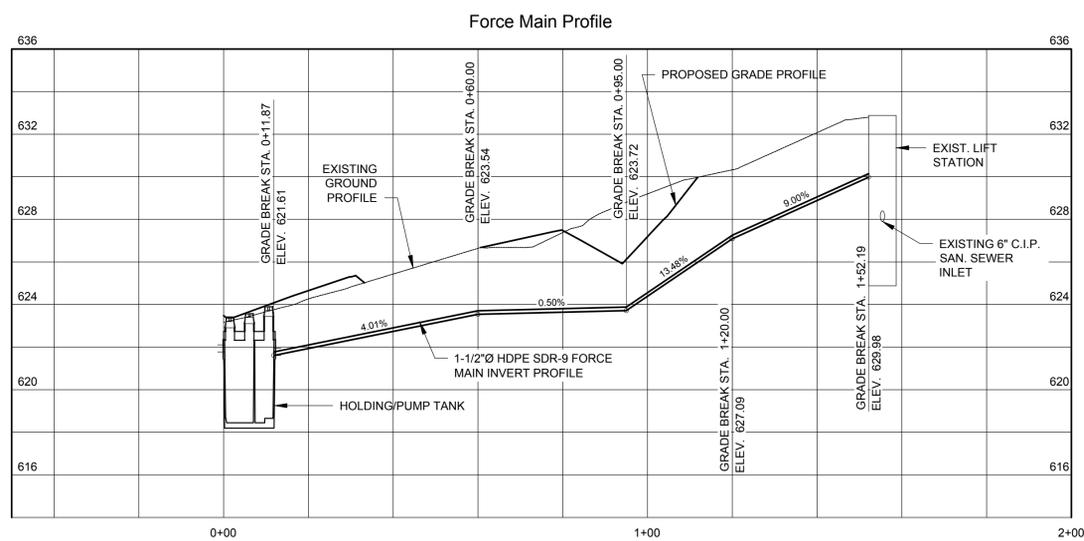


Project Name
**Aquatic Invasive Species Prevention
 Boat Washing Facilities Design**
 Black River Harbor and Hagerman
 Lake Recreational Sites
 Ottawa National Forest
 Bessemer and Iron River Ranger Districts

**FINAL SUBMITTAL
 DOCUMENTS**

Drawing Title
**Black River Harbor
 Profiles**

Drawn J. SOLBERG	CBE Project No. 10-110
Checked J. SAJDAK	Drawing Sheet No. C102
CAD Archive No.	
Date 4-29-2011	
Plotter Scale as shown	Sheet 3 of 12



GRADES AND ELEVATIONS SHOWN UNDER DOCK ARE APPROXIMATE. CONTRACTOR WILL DETERMINE BEST ROUTING THROUGH DOCK FRAMING WITH FINAL APPROVAL BY THE CONTRACTING OFFICER. PROVIDE CONTINUOUS SLOPE TO SYSTEM DRAIN VALVE.

DRAWING NOTES

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No.	Revision/Issue	Date

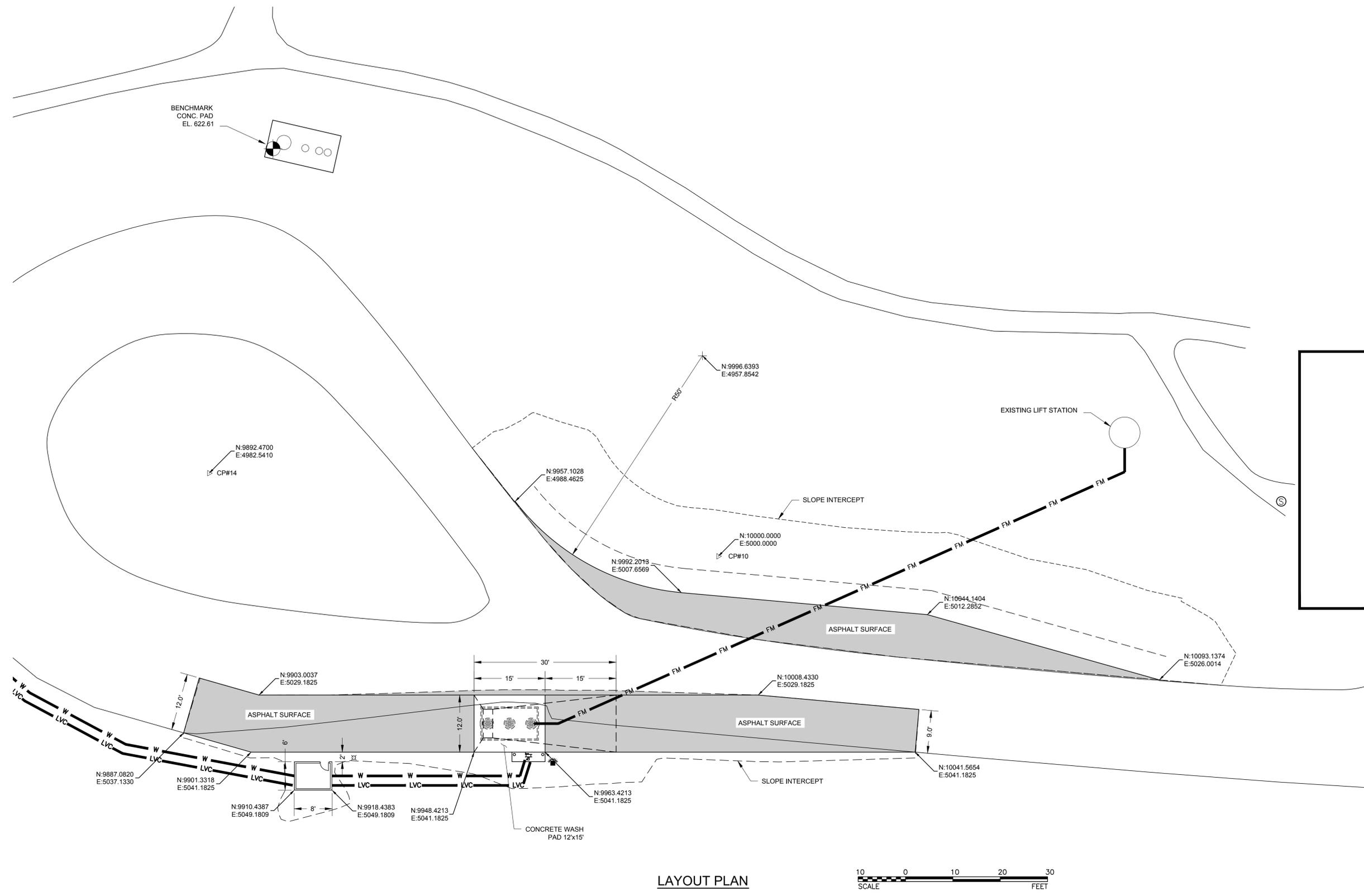


Project Name
**Aquatic Invasive Species Prevention
 Boat Washing Facilities Design**
 Black River Harbor and Hagerman
 Lake Recreational Sites
 Ottawa National Forest
 Bessemer and Iron River Ranger Districts

**FINAL SUBMITTAL
 DOCUMENTS**

Drawing Title
**Black River Harbor
 Layout Plan**

Drawn J. SOLBERG	CBE Project No. 10-110
Checked J. SAJDAK	Drawing Sheet No. C103
CAD Archive No.	
Date 4-29-2011	
Plotter Scale as shown	Sheet 4 of 12



DRAWING NOTES

No.	Revision/Issue	Date
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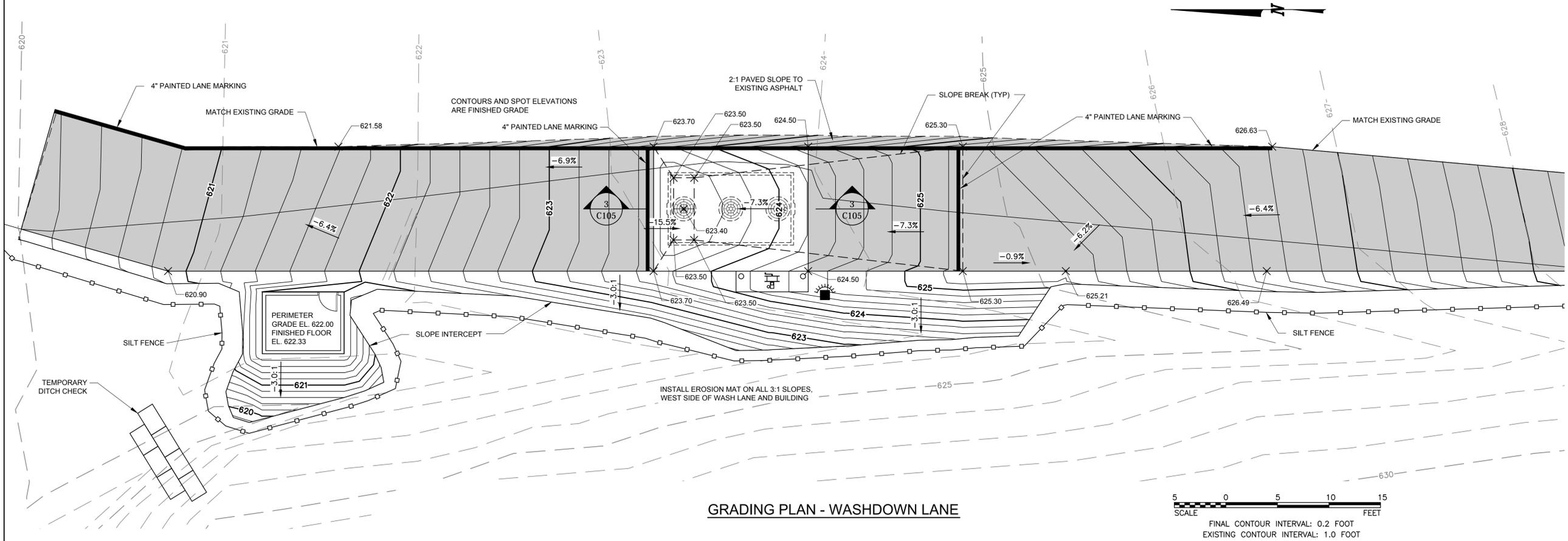
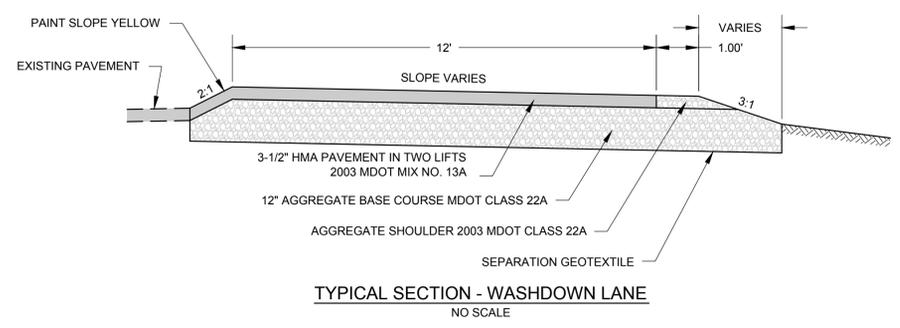
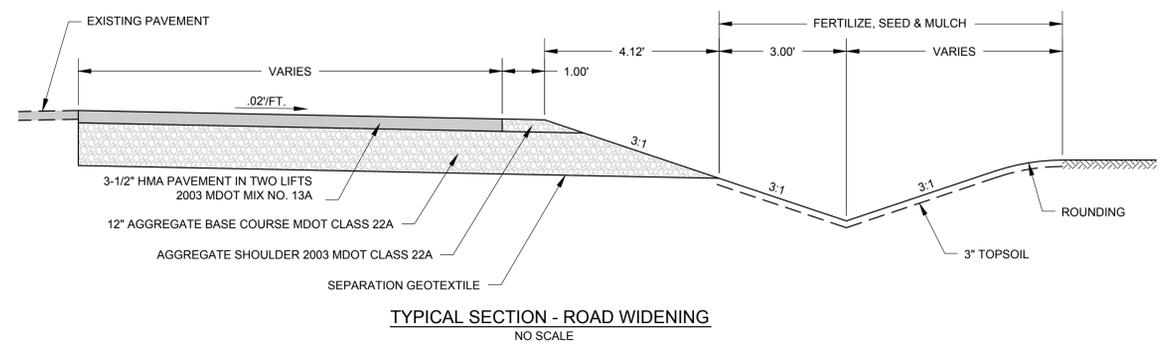
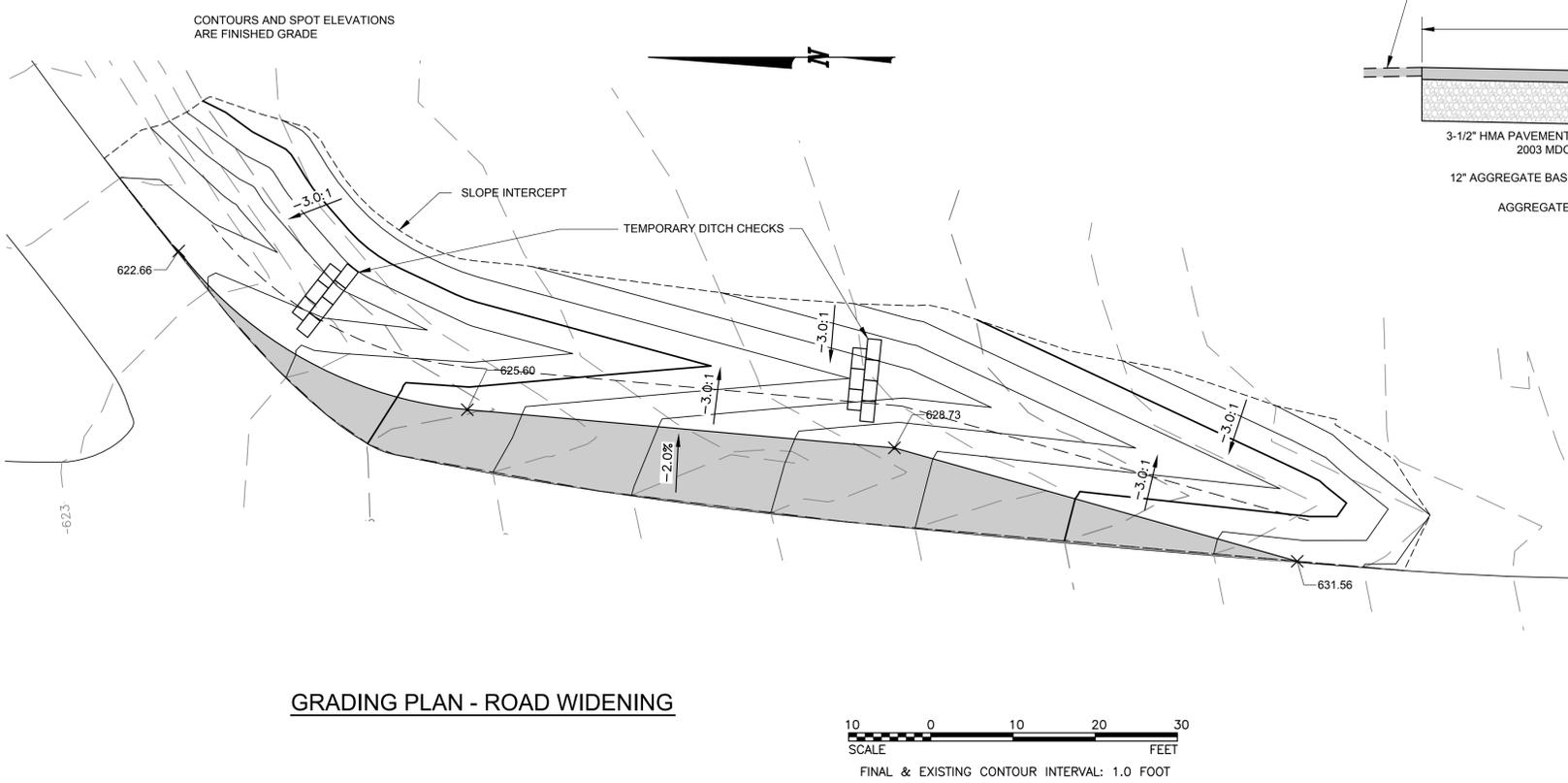


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Aquatic Invasive Species Prevention Boat Washing Facilities Design
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 Ottawa National Forest
 Bessemer and Iron River Ranger Districts

FINAL SUBMITTAL DOCUMENTS

Drawing Title
Black River Harbor Grading Plan

Drawn J. SOLBERG	CBE Project No. 10-110
Checked J. SAJDAK	Drawing Sheet No. C104
CAD Archive No.	
Date 4-29-2011	Sheet 5 of 12
Plotter Scale as shown	



GRADING PLAN - WASHDOWN LANE

DRAWING NOTES

1. THE LOCATION OF SUPPLY WATER PIPING WITHIN THE DOCK STRUCTURE IS SCHEMATIC. THE CONTRACTOR WILL DETERMINE THE BEST ROUTING THROUGH THE DOCK FRAMING WITH FINAL APPROVAL BY THE CONTRACTING OFFICER. PROVIDE CONTINUOUS SLOPE TO SYSTEM DRAIN VALVE.
2. THE CONSTRUCTION OF THE EXISTING DOCK VARIES THROUGHOUT ITS LENGTH. THE CONSTRUCTION SHOWN ON THIS DRAWING IS AS OBSERVED ABOVE THE WATER LINE, AND AS SHOWN ON AS-BUILT DRAWINGS BELOW THE WATER LINE. NEAR THE PUMP LOCATION, WHEN VARYING CONDITIONS ARE ENCOUNTERED THE CONTRACTING OFFICER WILL MAKE THE FINAL DETERMINATION AS TO CONSTRUCTION MODIFICATIONS.
3. REMOVE AND REINSTALL EXISTING DECK BOARDS AS REQUIRED TO INSTALL PIPING AND APPURTENANCES.
4. * ALARM SHALL INCLUDE DISABLING OF WASH PUMP.
5. 3/4" MARINE PLYWOOD CONSTRUCTION WITH CEDAR SHAKE ROOF. HINGE ROOF ON BACK SIDE. PROVIDE AND INSTALL HASP AND PADLOCK ON FRONT SIDE. FASTEN ENCLOSURE TO DECK TIMBERS WITH FOUR STAINLESS STEEL LAG SCREWS. STAIN ENCLOSURE TO MATCH OTHER STAINED WOOD ON SITE. PROVIDE AND INSTALL STAINLESS STEEL SCREENED VENTILATION ON EACH END OF ENCLOSURE FOR PUMP COOLING.

No.	Revision/Issue	Date
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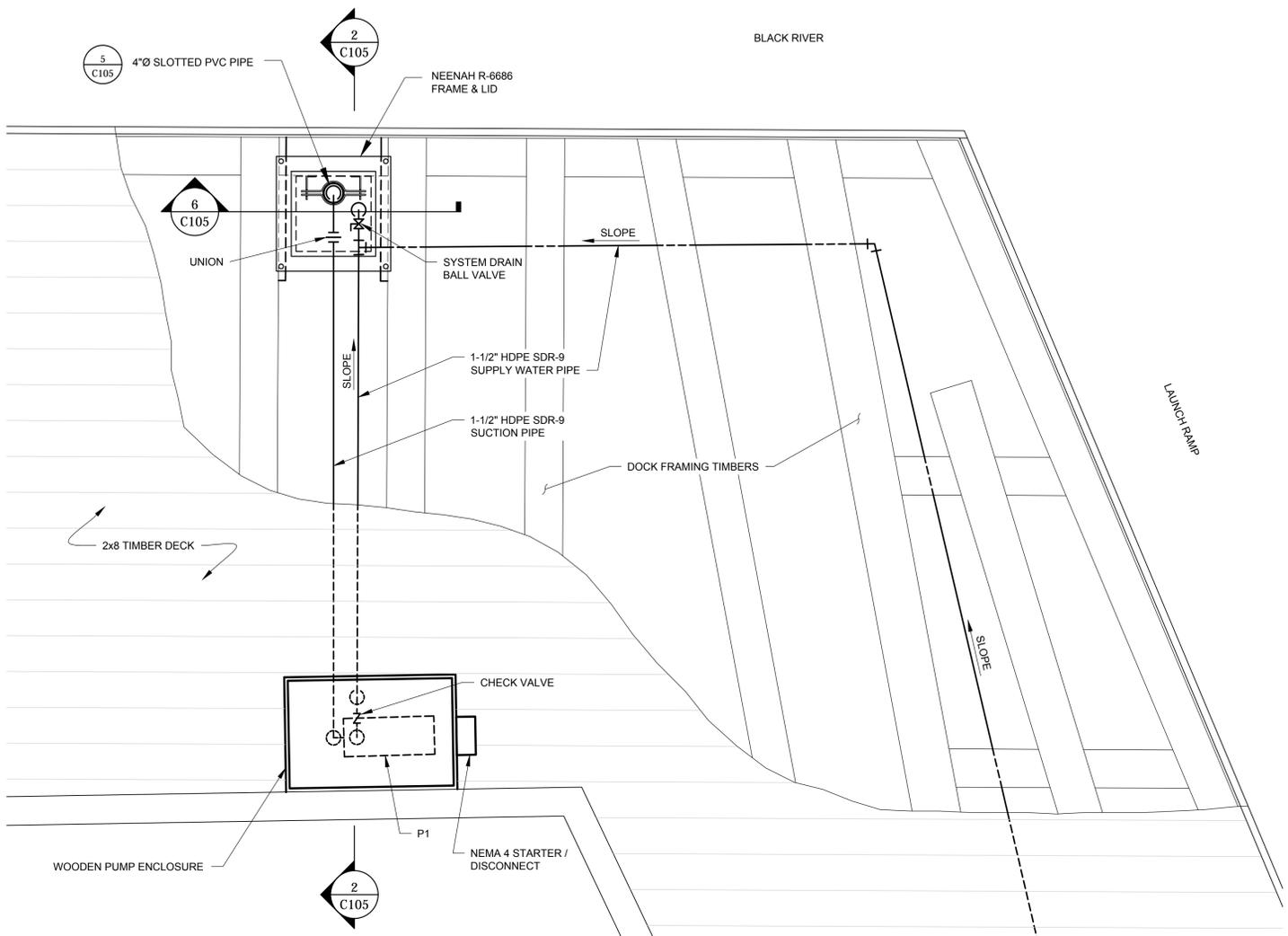


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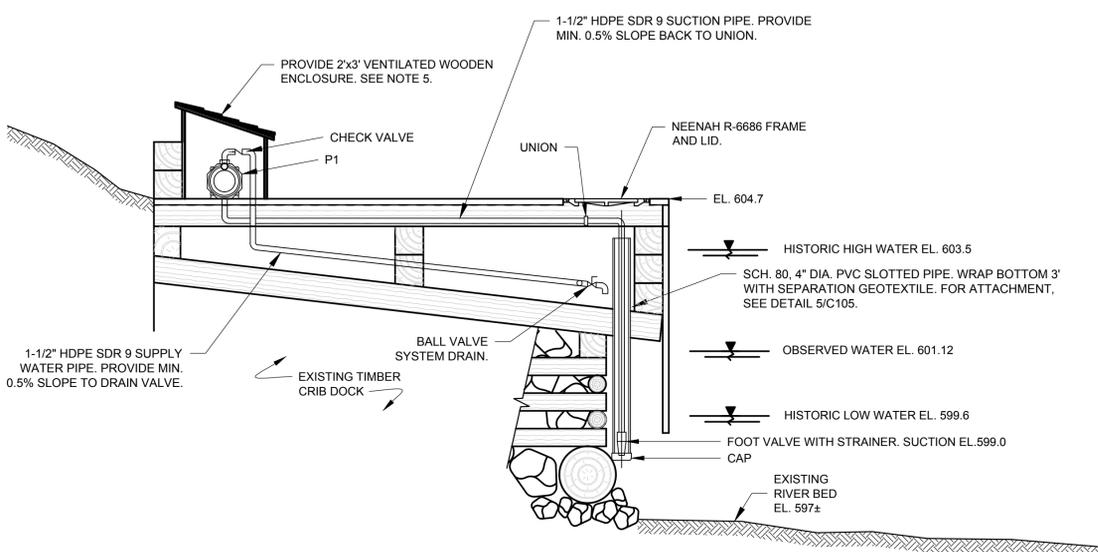
FINAL SUBMITTAL DOCUMENTS

Drawing Title
Black River Harbor Details

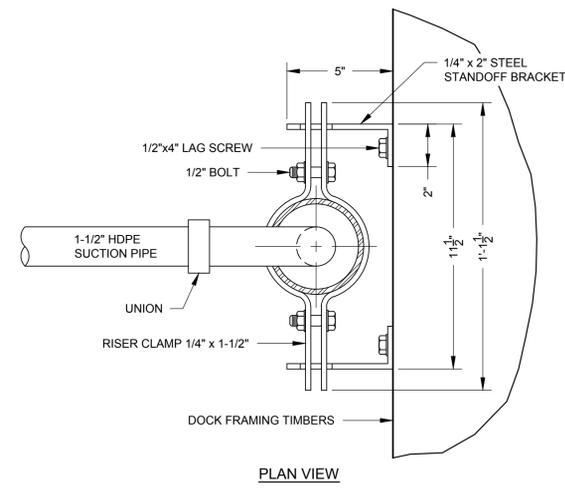
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CAD Archive No.	
Date 4-29-2011	
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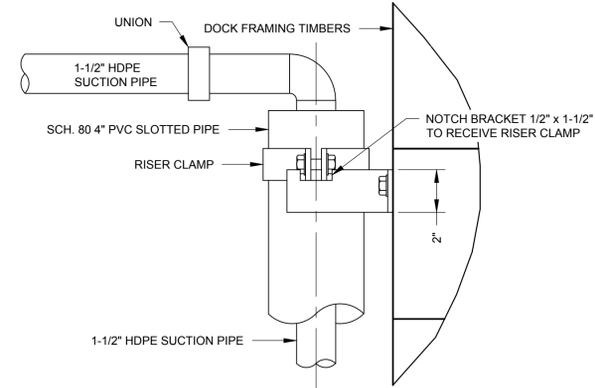
1 SUPPLY WATER PUMP AND INTAKE PLAN
 SCALE: 3/4" = 1'-0"



2 SECTION THRU DOCK AT SUPPLY WATER PUMP & INTAKE
 SCALE: 1/2" = 1'-0"

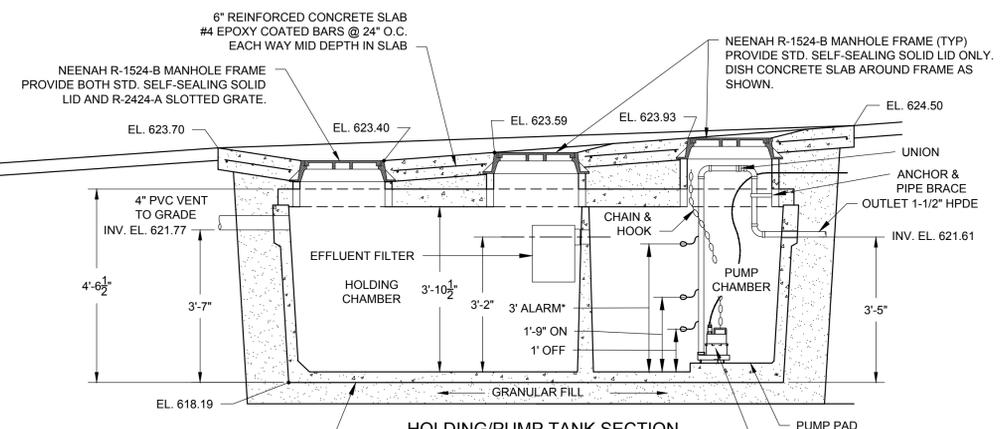


PLAN VIEW

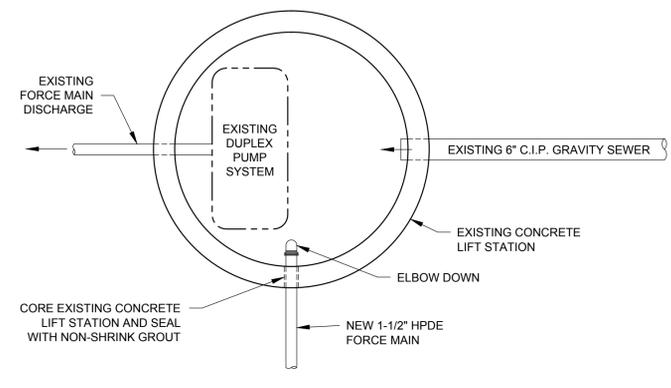


ELEVATION VIEW

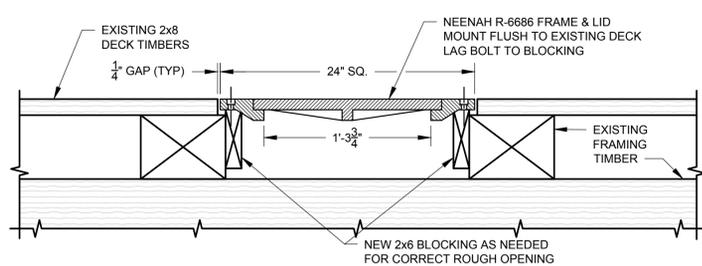
5 4\"/>



3 HOLDING/PUMP TANK SECTION BLACK RIVER HARBOR SITE
 SCALE: 1/2" = 1'-0"



4 LIFT STATION CONNECTION DETAIL
 NO SCALE



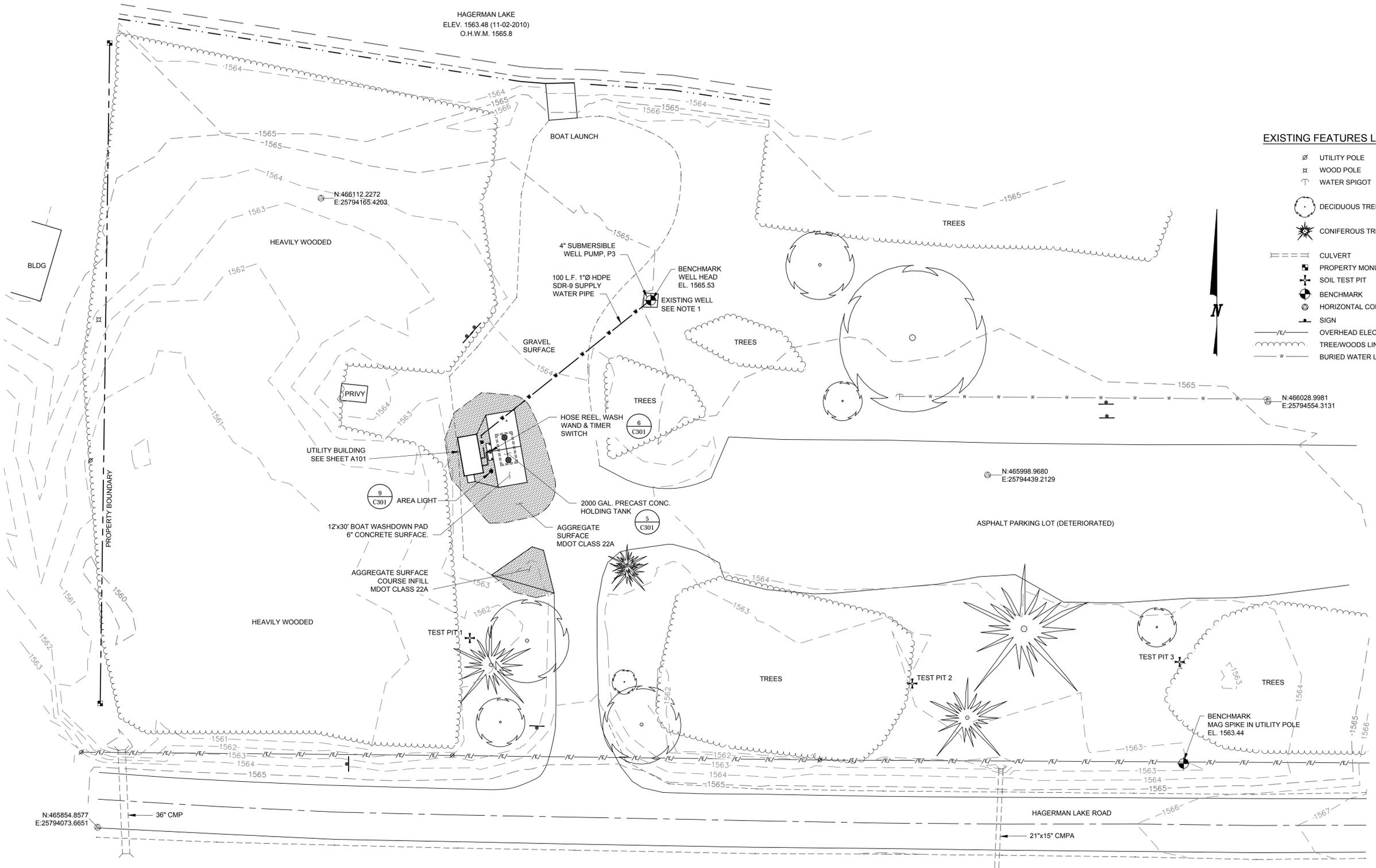
6 ACCESS COVER SECTION
 SCALE: 1-1/2" = 1'-0"

DRAWING NOTES

- EXISTING WELL SPECIFICATIONS:
 - 6" DIAMETER, STEEL CASED WELL WITH THREADED AND COUPLED JOINTS.
 - 34 FEET DEPTH.
 - STATIC WATER LEVEL 7 FEET.
 - PUMPING LEVEL 10.5' (AFTER PUMPING 15 GPM FOR 2.5 HOURS).

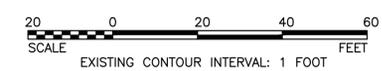
EXISTING FEATURES LEGEND

- ⊗ UTILITY POLE
- ⊗ WOOD POLE
- ⊕ WATER SPIGOT
- DECIDUOUS TREE
- ⊗ CONIFEROUS TREE
- ≡≡≡ CULVERT
- ▣ PROPERTY MONUMENT
- ⊕ SOIL TEST PIT
- ⊕ BENCHMARK
- ⊕ HORIZONTAL CONTROL POINT
- ⊕ SIGN
- /—/— OVERHEAD ELECTRIC
- ~ TREE/WOODS LINE
- - - BURIED WATER LINE



PROPOSED FEATURES LEGEND

- w — SUPPLY WATER PIPE
- ▨ NEW CRUSHED AGGREGATE SURFACE



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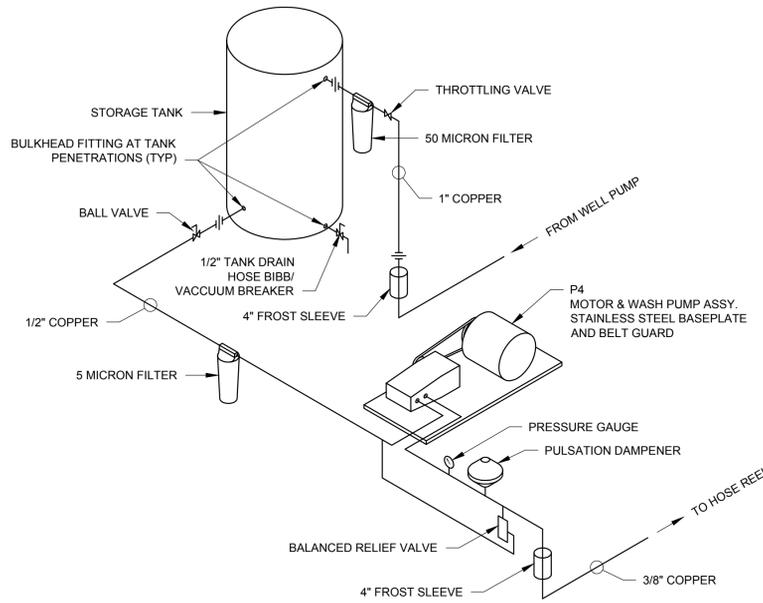


Project Name
**Aquatic Invasive Species Prevention
 Boat Washing Facilities Design
 Black River Harbor and Hagerman
 Lake Recreational Sites**
 Ottawa National Forest
 Bessemer and Iron River Ranger Districts

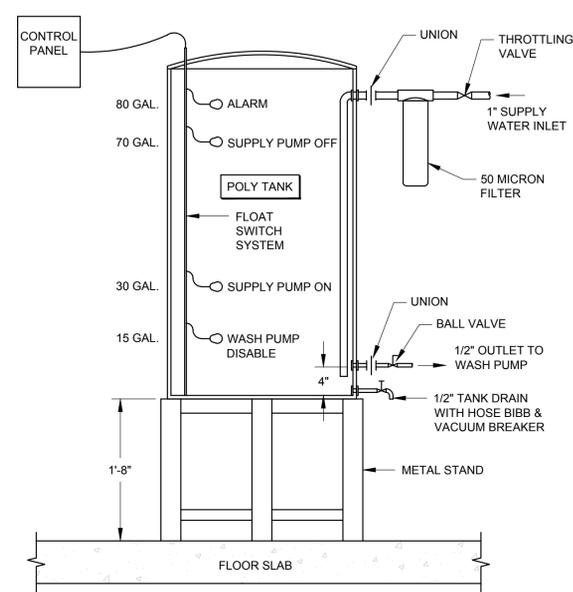
**FINAL SUBMITTAL
 DOCUMENTS**

Drawing Title
**Hagerman Lake
 Site Plan**

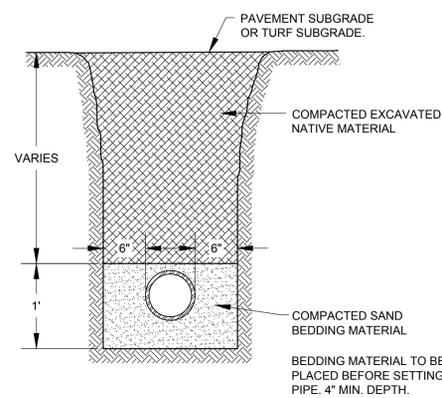
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Checked J. SAJDAK	Drawing Sheet No. C201
CAD Archive No.	
Date 4-29-2011	
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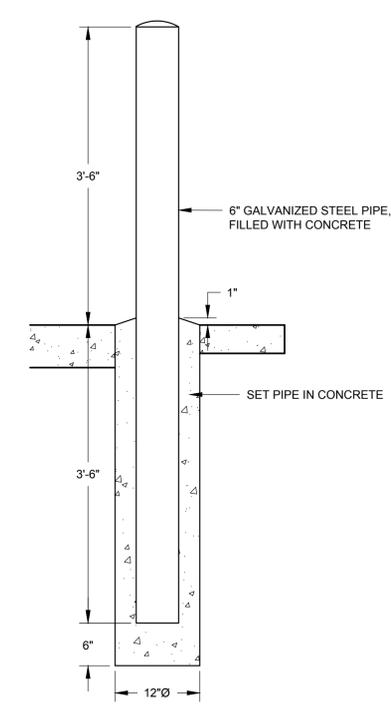
1 UTILITY BUILDING PLUMBING ISOMETRIC
NO SCALE



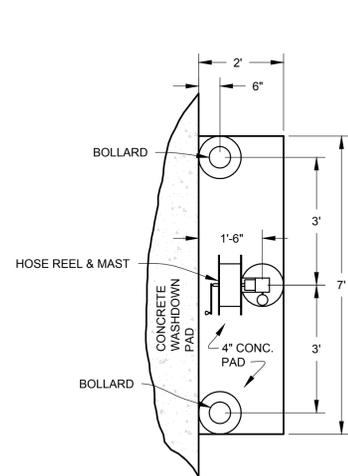
2 TYPICAL WATER STORAGE TANK
SCALE: 1"=1'-0"



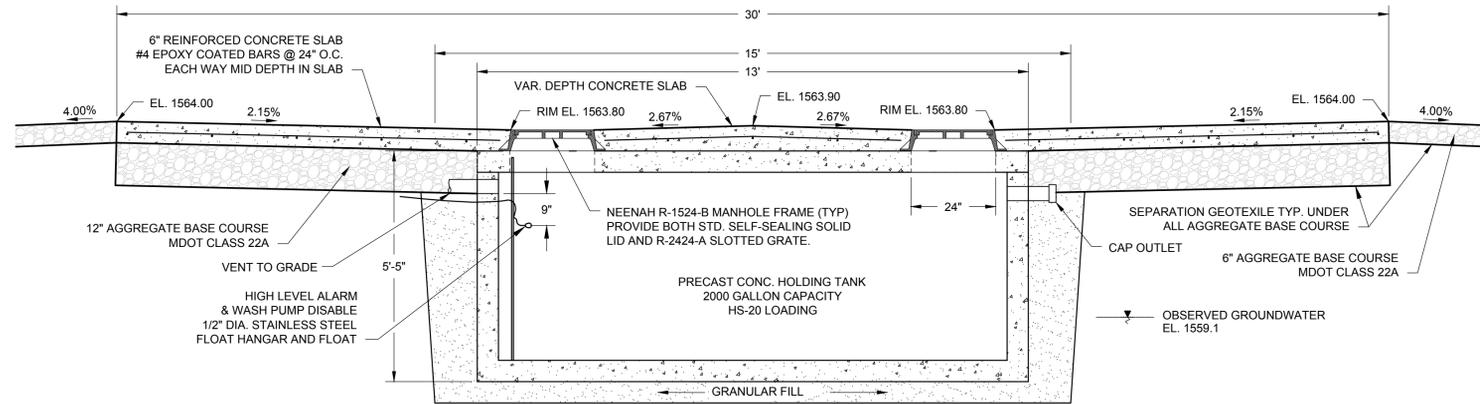
3 TRENCH BACKFILL AND PIPE BEDDING DETAIL
NO SCALE



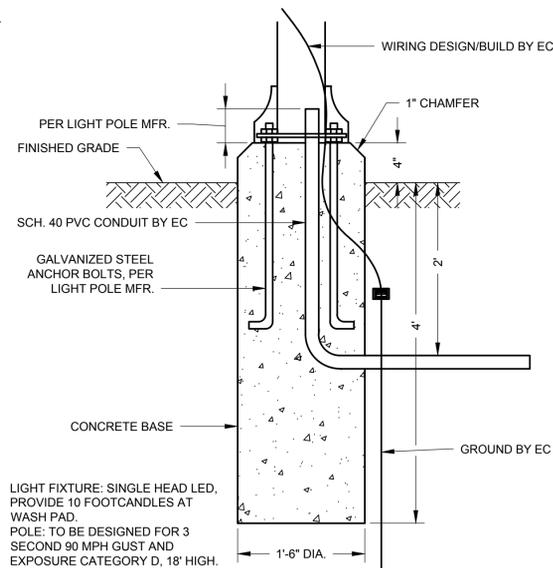
4 BOLLARD DETAIL
SCALE: 1"=1'-0"



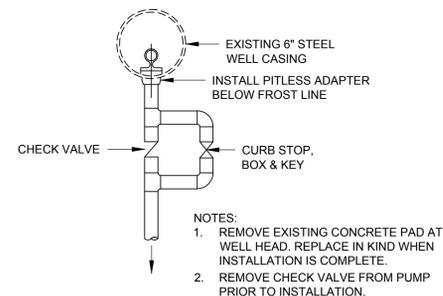
6 HOSE REEL, MAST & BOLLARD PLAN
SCALE: 1/2"=1'-0"



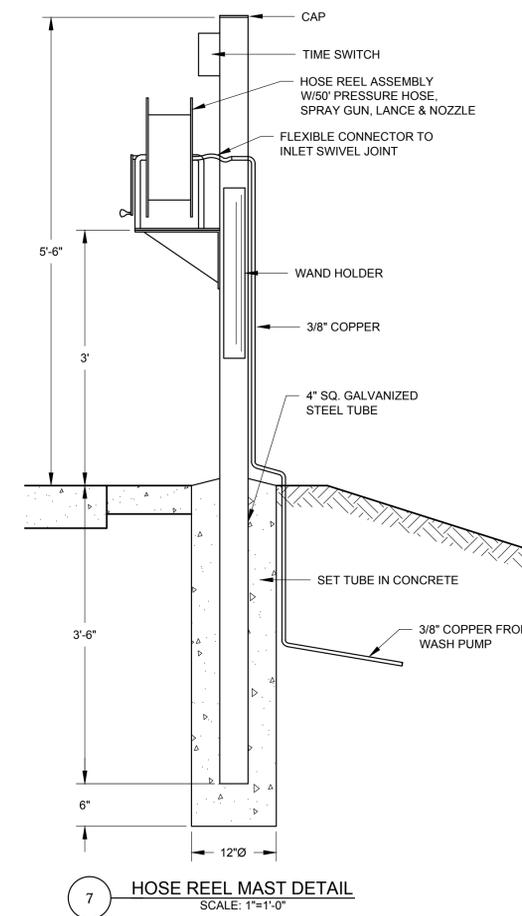
5 WASHDOWN PAD SECTION HAGERMAN LAKE SITE
SCALE: 1/2" = 1'-0"



9 TYPICAL AREA LIGHT POLE BASE
NO SCALE



8 WELL PUMP INSTALLATION DETAIL HAGERMAN LAKE SITE
NO SCALE



7 HOSE REEL MAST DETAIL
SCALE: 1"=1'-0"

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PHONE: (414) 258-6004
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DRAWING NOTES

No.	Revision/Issue	Date
4		
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**U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
REGION NINE**

Project Name
**Aquatic Invasive Species Prevention
Boat Washing Facilities Design
Black River Harbor and Hagerman
Lake Recreational Sites**
Ottawa National Forest
Bessemer and Iron River Ranger Districts

**FINAL SUBMITTAL
DOCUMENTS**

Drawing Title
**Miscellaneous
Construction Details**

Drawn J. SOLBERG	CBE Project No. 10-110
Checked J. SAJDAK	Drawing Sheet No. C301
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Date 4-29-2011	
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DRAWING NOTES

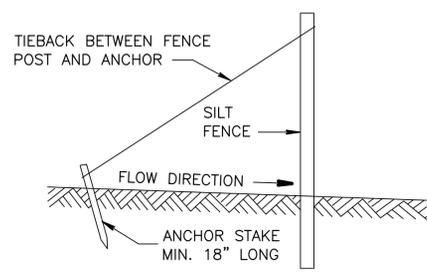
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Project Name
**Aquatic Invasive Species Prevention
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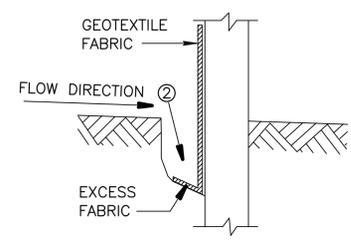
**FINAL SUBMITTAL
 DOCUMENTS**

Drawing Title
**Silt Fence & Erosion
 Bale Installation Details**

Drawn J. SOLBERG	CBE Project No. 10-110
Checked J. SAJDAK	Drawing Sheet No. C302
CAD Archive No.	
Date 4-29-2011	
Plotter Scale as shown	Sheet 10 of 12



SILT FENCE TIE BACK
 (WHEN ADDITIONAL SUPPORT REQUIRED)

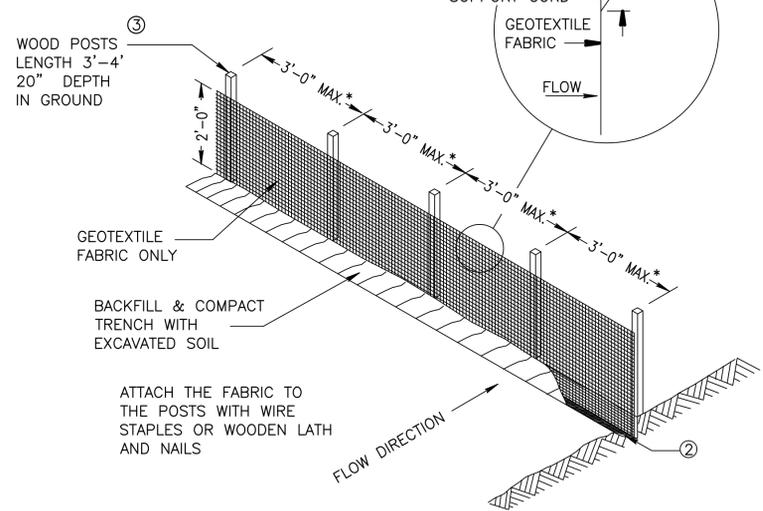


TRENCH DETAIL

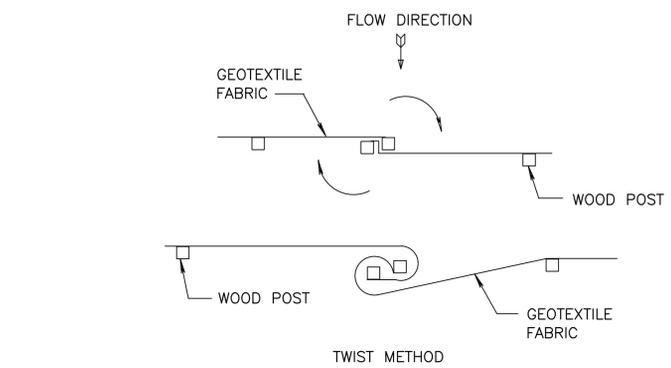
GENERAL NOTES

- HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- WOOD POSTS SHALL BE A MINIMUM SIZE OF 1 1/2" X 1 1/2" OF OAK OR HICKORY.
- CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.

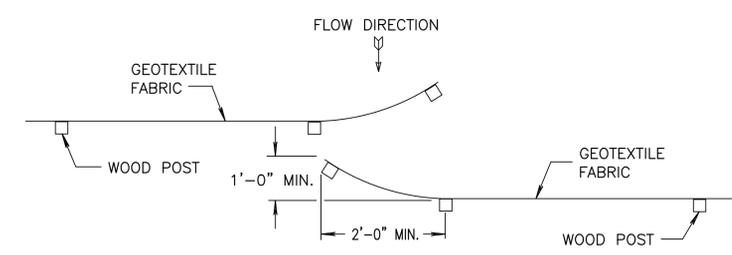
NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS



SILT FENCE



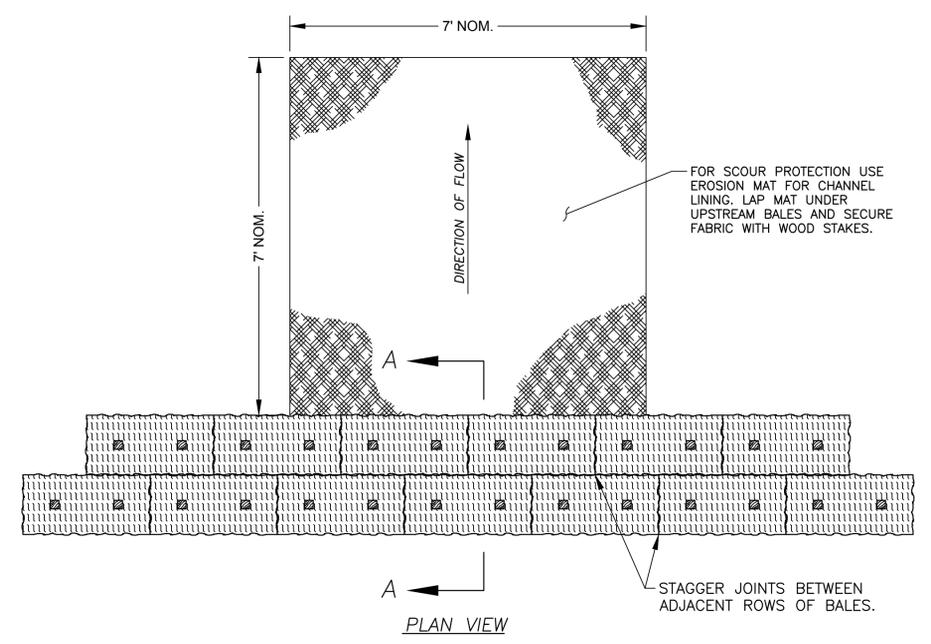
TWIST METHOD



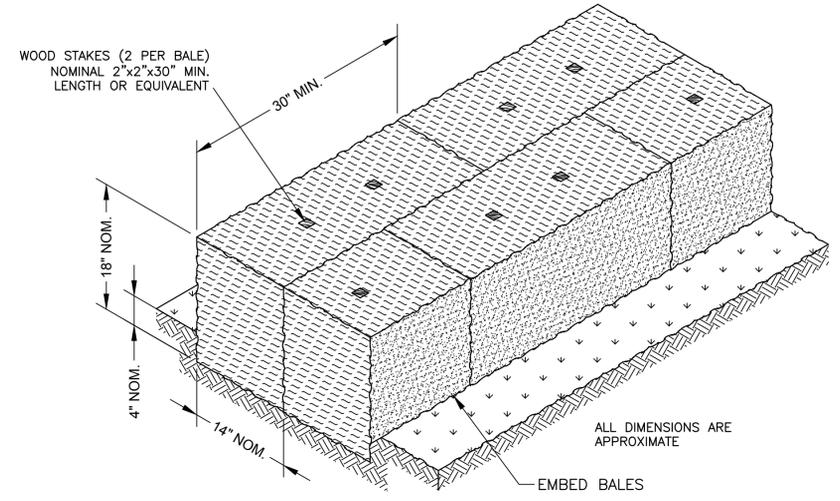
HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE ⑤

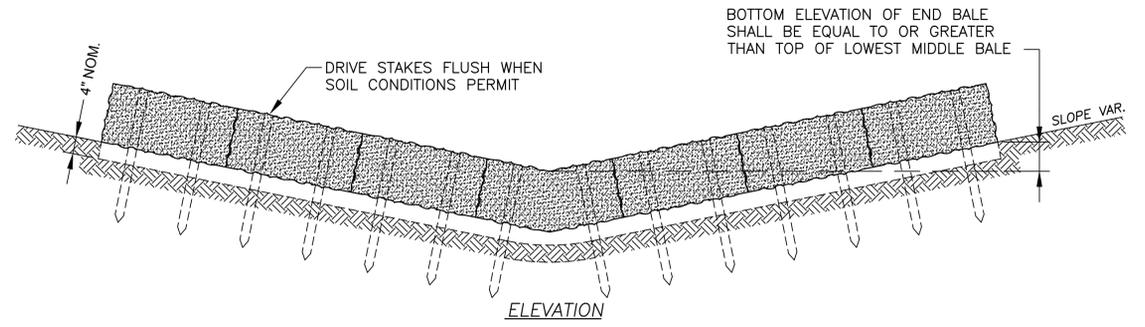
* NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.



PLAN VIEW

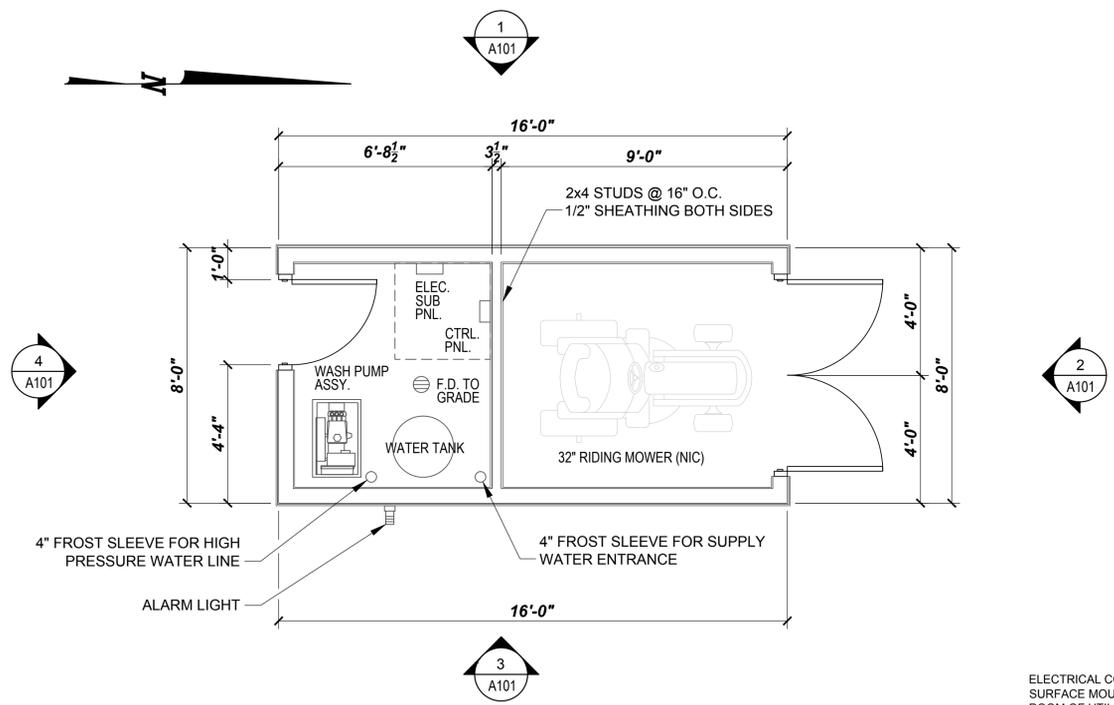


SECTION A-A

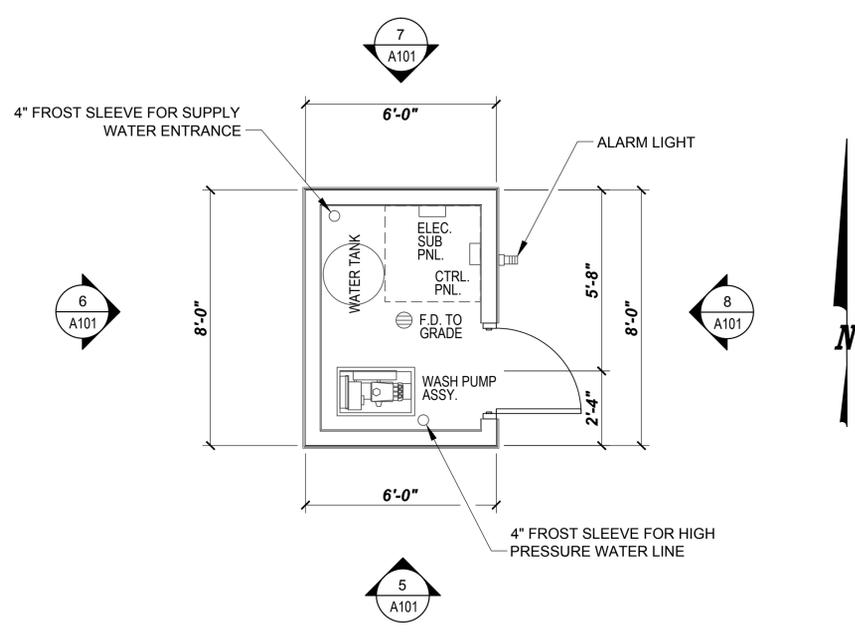


ELEVATION

TEMPORARY DITCH CHECKS USING EROSION BALES

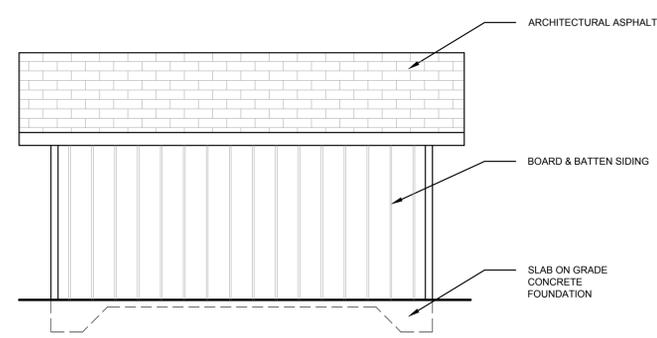


HAGERMAN LAKE UTILITY BUILDING PLAN
 SCALE: 3/8" = 1'-0"

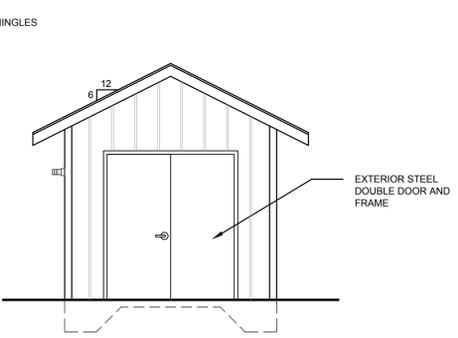


BLACK RIVER HARBOR UTILITY BUILDING PLAN
 SCALE: 3/8" = 1'-0"

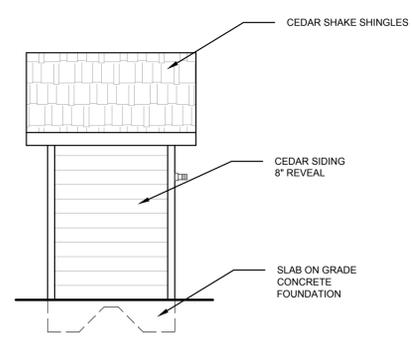
ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL SURFACE MOUNT LIGHT WITH SINGLE POLE SWITCH IN EACH ROOM OF UTILITY BUILDINGS. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL WATERPROOF GFCI OUTLETS IN EACH BUILDING, MINIMUM ONE ON EACH WALL.



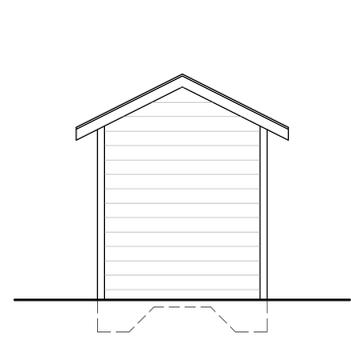
1 WEST ELEVATION
 SCALE: 1/4" = 1'-0"



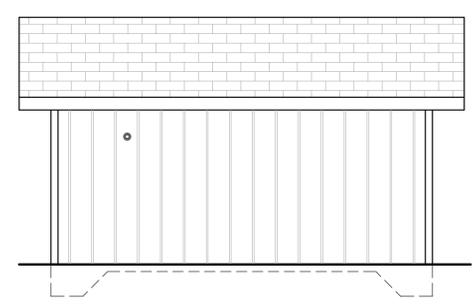
2 NORTH ELEVATION
 SCALE: 1/4" = 1'-0"



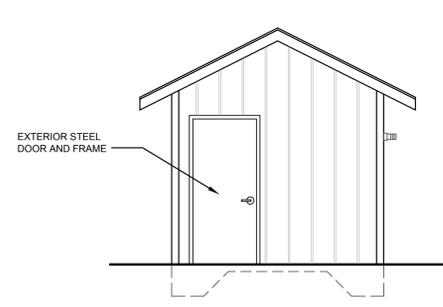
5 SOUTH ELEVATION
 SCALE: 1/4" = 1'-0"



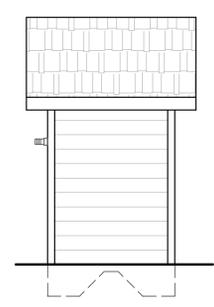
6 WEST ELEVATION
 SCALE: 1/4" = 1'-0"



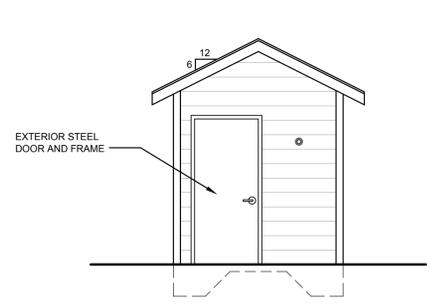
3 EAST ELEVATION
 SCALE: 1/4" = 1'-0"



4 SOUTH ELEVATION
 SCALE: 1/4" = 1'-0"



7 NORTH ELEVATION
 SCALE: 1/4" = 1'-0"



8 EAST ELEVATION
 SCALE: 1/4" = 1'-0"

DRAWING NOTES

△		
△		
△		
△		
No.	Revision/Issue	Date

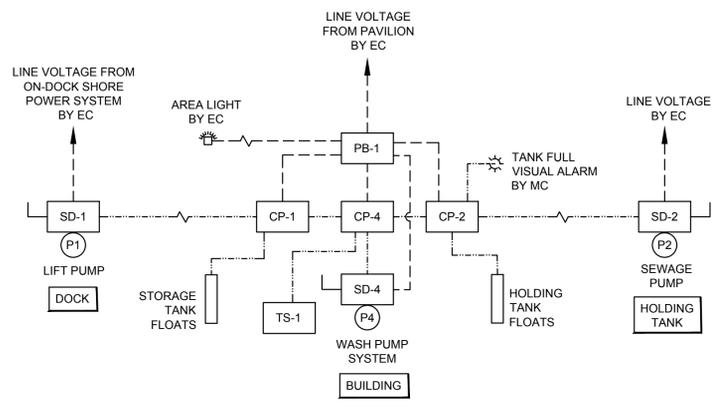


Project Name
Aquatic Invasive Species Prevention Boat Washing Facilities Design
 Black River Harbor and Hagerman Lake Recreational Sites
 Ottawa National Forest
 Bessemer and Iron River Ranger Districts

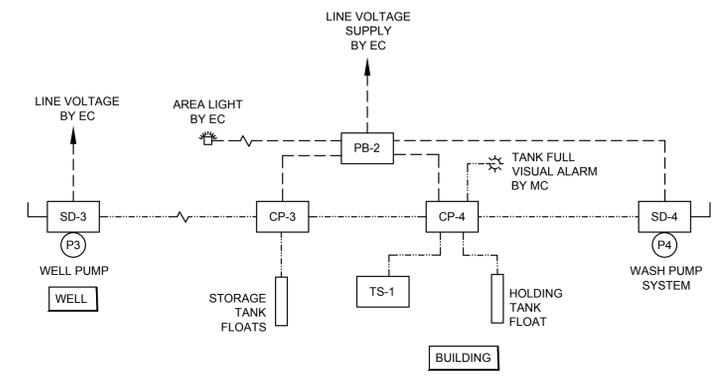
FINAL SUBMITTAL DOCUMENTS

Drawing Title
Equipment and Storage Building Plan

Drawn J. SOLBERG	CBE Project No. 10-110
Checked J. SAJDAK	Drawing Sheet No. A101
CAD Archive No.	
Date 4-29-2011	
Plotter Scale as shown	Sheet 11 of 12



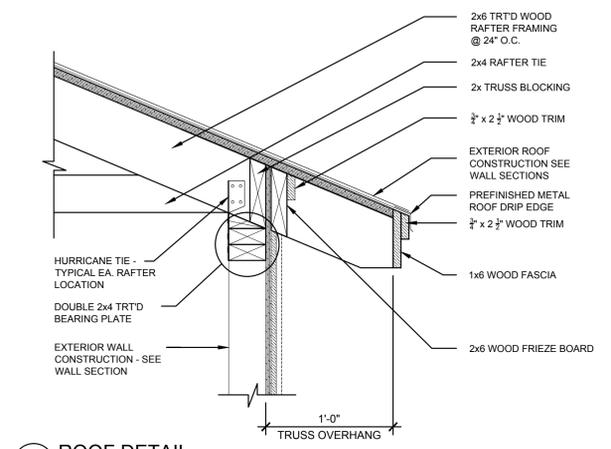
LOW VOLTAGE & ELECTRICAL SCHEMATIC RISER DIAGRAM BLACK RIVER HARBOR SITE
 NO SCALE



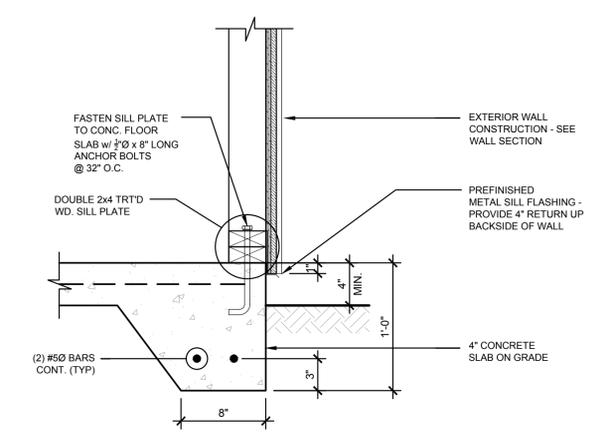
LOW VOLTAGE & ELECTRICAL SCHEMATIC RISER DIAGRAM HAGERMAN LAKE SITE
 NO SCALE

- NOTES:**
- LINE VOLTAGE WORK IS DESIGN/BUILD BY ELECTRICAL CONTRACTOR (EC) FOR ALL PROJECT WORK. RISER IS SHOWN FOR CONVENIENCE.
 - LOW VOLTAGE CONTROL WORK SHALL BE BY MECHANICAL CONTRACTOR (MC).
 - ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE N.E.C. AND USDA FOREST SERVICE GUIDELINES.
 - 230V 1-PHASE BREAKERS AVAILABLE IN EXISTING PAVILION PANEL AT BLACK RIVER HARBOR SITE. 230V 1-PHASE POWER AVAILABLE ON DOCK.
 - AERIAL POWER LOCATED ALONG ROAD AT HAGERMAN LAKE SITE. ELECTRICAL CONTRACTOR TO DESIGN/BUILD CONNECTION IN COORDINATION WITH ELECTRIC UTILITY.

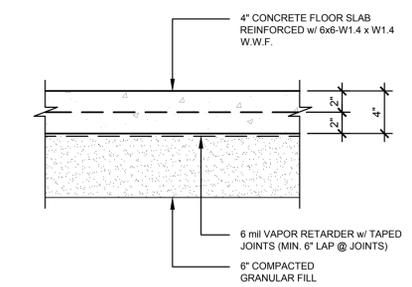
- LEGEND**
- SD-# STARTER/DISCONNECT FOR EACH PUMP BY MC
 - P1 SEE PUMP SPECIFICATION - LIFT PUMP AT DOCK BY MC
 - P2 SEE PUMP SPECIFICATION - SEWAGE PUMP IN HOLDING TANK BY MC
 - P3 SEE PUMP SPECIFICATION - SUBMERSIBLE WELL PUMP BY MC
 - P4 SEE PUMP SPECIFICATION - PRESSURE WASH PUMP IN BUILDING BY MC
 - CP-# CONTROL PANEL FOR PUMP BY MC
 - PB-1 ELECTRICAL PANELBOARD IN BUILDING BY EC
 - PB-2 ELECTRICAL PANELBOARD IN BUILDING BY EC
 - TS-1 TIME SWITCH ON HOSE REEL MAST BY MC
 - LOW VOLTAGE WIRING BY MC
 - - - - LINE VOLTAGE WIRING BY EC



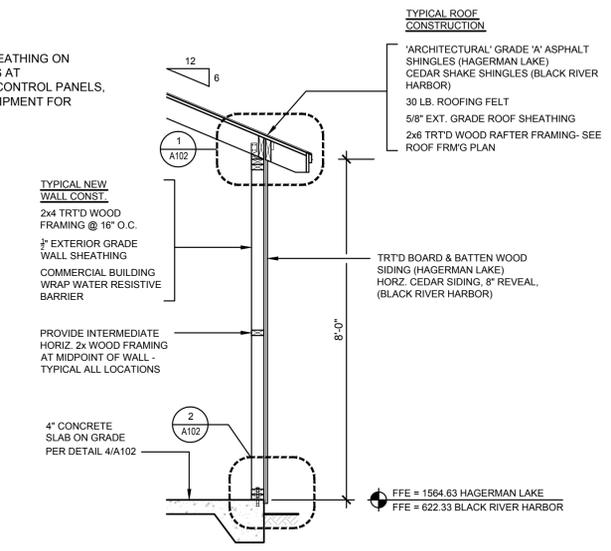
1 ROOF DETAIL
 SCALE: 1 1/2" = 1'-0"



2 FLOOR DETAIL
 SCALE: 1 1/2" = 1'-0"



4 TYPICAL 4" CONCRETE FLOOR SLAB
 SCALE: 1 1/2" = 1'-0"



3 EXTERIOR WALL SECTION
 SCALE: 1/2" = 1'-0"

DRAWING NOTES

No.	Revision/Issue	Date



Project Name
 Aquatic Invasive Species Prevention Boat Washing Facilities Design Black River Harbor and Hagerman Lake Recreational Sites
 Ottawa National Forest
 Bessemer and Iron River Ranger Districts

FINAL SUBMITTAL DOCUMENTS

Drawing Title
 Building Details & Electrical Diagrams

Drawn J. SOLBERG	CBE Project No. 10-110
Checked J. SAJDAK	Drawing Sheet No. A102
Date 4-29-2011	Sheet 12 of 12
Plotter Scale as shown	