Fort Peck Wellness Center

Assiniboine & Sioux Tribes of the Fort Peck Indian Reservation

HEALTH PROMOTION DISEASE PREVENTION
FORT PECK TRIBES

Office of Indian Energy Annual Program Review 2020 Meeting

Assiniboine & Sioux Tribes of the Fort Peck Indian Reservation

Fort Peck Wellness Center Energy Project

Poplar, Montana

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Fort Peck Indian Reservation

- NE Montana
- 2.1 Million Acres
- Checkerboard Land Pattern

- Assiniboine & Sioux
- 11,000 members
- 6700 live on Reservation

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Fort Peck Wellness Center

- Multi disciplinary Wellness/Activity Center
- Initiated in 2012 by Health Promotion Disease Prevention Program
- Established CAT (Construction Advisory Team) in October 2018, intratribal, multidisciplinary

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CAT Team

- Planning Office – 2 Representatives
- Tribes' Secretary Accountant
- Environmental Office – 1 Rep
- Legal Representation – 2 Reps
- Health Prevention Staff - 6 Reps
- Road Department – 1 Rep
- Minerals – 1 Rep

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CAT Deliverables

- Secured Civil Engineering services
- Advertised and selected Architectural Firm
- Reviewed funding options
- Established footprint of building
- Determined appropriate amenities
- Supported Green infrastructure options including DOE Grant
- Secures Tribal Executive Board support through information sharing including public outreach

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Past Related Activities

"Model Green Tribal Community" – FPT Strategic Plan

- Ground source heat pumps (GSHP) – Adult Correctional Facility & 8 tribal homes
- Rehab Cultural Center for increased insulation and lighting efficiency
- GSHP and EE lighting installed on Phase III Tribal HQs and new Community Center
- Sustainable Village

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Project Objectives:

- **Objective 1: Install 72-78 kW of roof mounted solar Photo Voltaic System by the end of the 21st month**
- **Objective 2: Reduce utility bills by approximately 23% per year through installing 8 Building Energy Efficiency Measures (EEM's) by the end of the 21st month**

Baseline Assumptions, IECC 2012 compliant building:

- **Electric Usage: Approximately 900,000 kWh per year**
- **Natural Gas Usage: 65,262 therms per year (based on package VAV system)**
- **Total expected utility cost - $108,690.00 per year**

Energy Saving Expectations:

- **Solar PV Arrays – operating cost savings - $5,991.00**
- **8 accepted building envelope, lighting, & VAV HVAC EEM's - $25,570.00 per year**
- **Total expected utility cost savings - $31,561.00 per year = 29% annual reduction**

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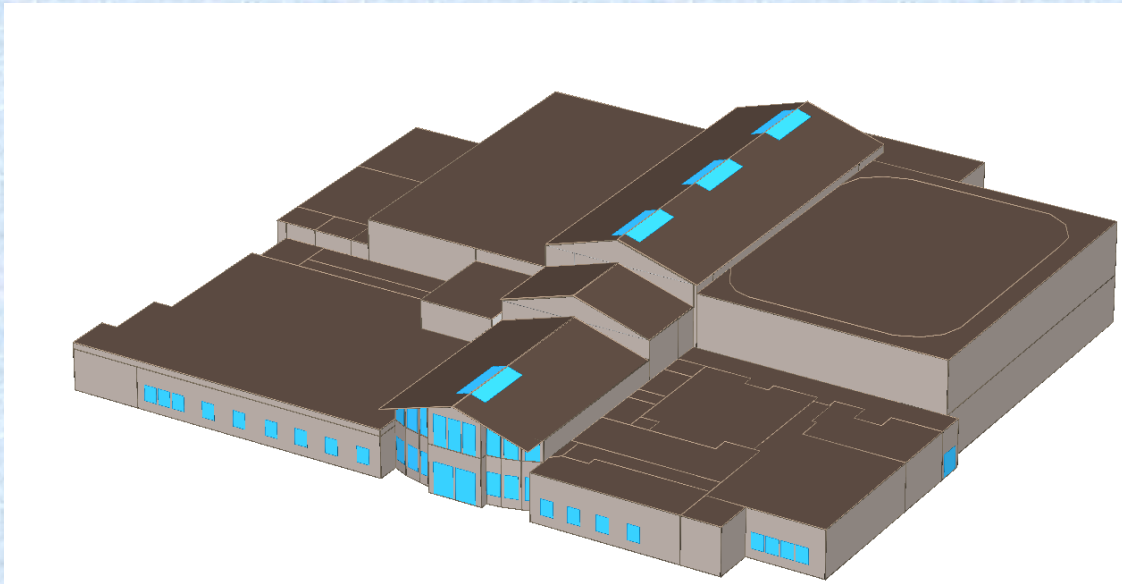

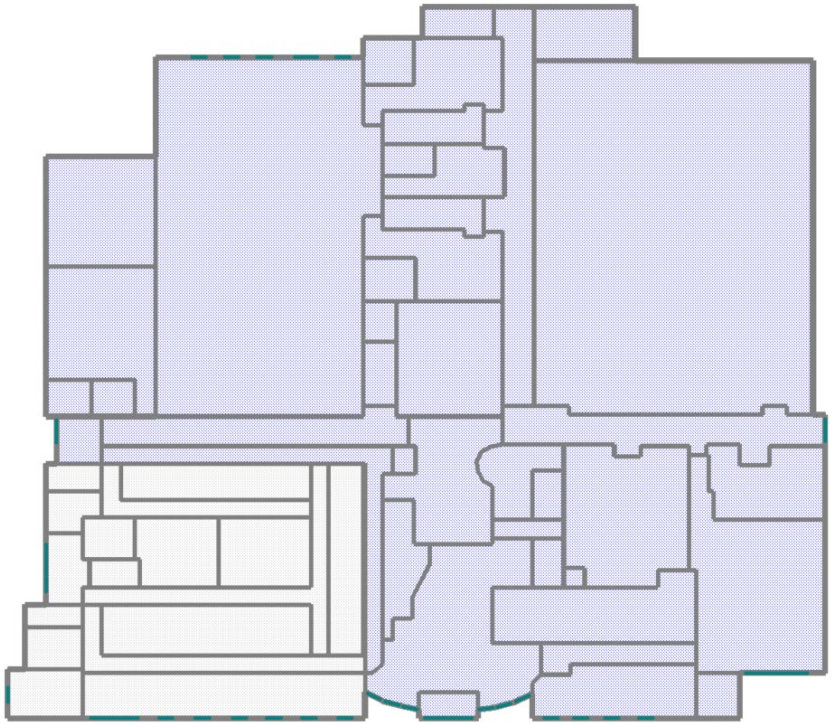

A detailed energy Simulation model was developed using eQuest (DOE 2.2) software.

Energy Savings:

- EEM's – 15 options considered and modeled
- EEM's – 8 options selected based on payback time frames

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EEM List and Energy Cost Savings Results

Item	Energy Efficiency Measure	Details	Energy Cost Savings per year	Cost Of Item (Baseline - EEM Cost)	Payback (Years)	EEM Accepted?	Reasoning for Acceptance or rejection
		Building Envelope and Lighting Components EEM Analysis					
E2	Improved Wall R value	IECC 2012 Code minimum vs. architectural wall of R-31.6	$ 1,009.00	$ 134,555.00	133	No	Poor payback
E4	Improved Roof R Value	IECC 2012 Code minimum vs. architectural roofof R-41.3	$ 592.00	$ 89,970.00	152	No	Poor payback
E8	Improved Windows	IECC 2012 Code minimum vs. triple glaze, Low E Argon Glass	$ 362.00	$ 10,823.00	30	Yes	Longer Payback, but helps meet comfort of occupants
E11	Improved Skylights	IECC 2012 baseline vs. High Performance U=0.16, SHG - 0.06	$ 475.00	$ 11,896.00	25	Yes	Fair Payback
L1	Provide High Efficiency Lighting (LED) and controls	IECC 2012 minimum vs. 0.6w/sf overall goal	$ 9,681.00	$ 53,466.00	6	Yes	Excellent payback
C1	Evaluate standard efficiency Geothermal Heat Pump vs standard VAV	Use standard efficiency comparison	$ 1,353.00	$ 100,000.00	74	No	Poor Payback
		VAV System EEM Analysis					
VM1	Utilize High Efficiency DX AHU	Versus Chilled Water AHU	$ 681.00	$ -	-	Yes	Instant Payback
VM2	Provide High Efficiency Chiller (if VAV)	Provide High Efficiency chiller vs. code minimum	$ 1,726.00	$ 54,000.00	31	No	Poor payback
VM3	Provide High Efficiency Boiler (if VAV)	Use Condensing boiler vs. code minimum boiler	$ 6,888.00	$ 114,408.00	17	Yes	Fair Payback, Helps meet 27% efficiency Goal
VM4	Provide Energy Recovery on AHU's	Provide heat wheel energy recovery between relief and fresh air	$ 3,155.00	$ 88,500.00	28	No	Will consume significant floor space in addition to moderate payback
S1	Provide Transpired Solar Collector	Minimum outside air through "solar wall" type transpired solar collector	$ 243.00	$ 10,200.00	42	No	Poor payback
		Pool Systems EEM Analysis					
VM5	Provide Pool HVAC Dehumidification Unit with heat recovery for pool heating	Use heat recovery on the Pool Dehumidification unit for pool heating. Cost includes HVAC unit upgrade and necessary piping and valves to pipe pool water to the heat recovery HX	$ 5,838.00	$ 10,000.00	2	Yes	Excellent payback
P1	Use High Efficiency Condensing Boiler for pool heating	Provide condensing boiler vs. 80% boiler for pool heating	$ 759.00	$ 16,310.00	21	Yes	Fair Payback, Helps meet 24% efficiency Goal
P2	Use Geothermal HP for pool heating vs. standard 80% boiler		$ (328.00)	N/A	N/A	No	No payback
P3	Utilize an Electric Pool cover	Use electrically operated pool cover (Pool Consultant)	$ 886.00	$ 24,270.00	27	Yes	Fair Payback, will also reduce dehumidification load

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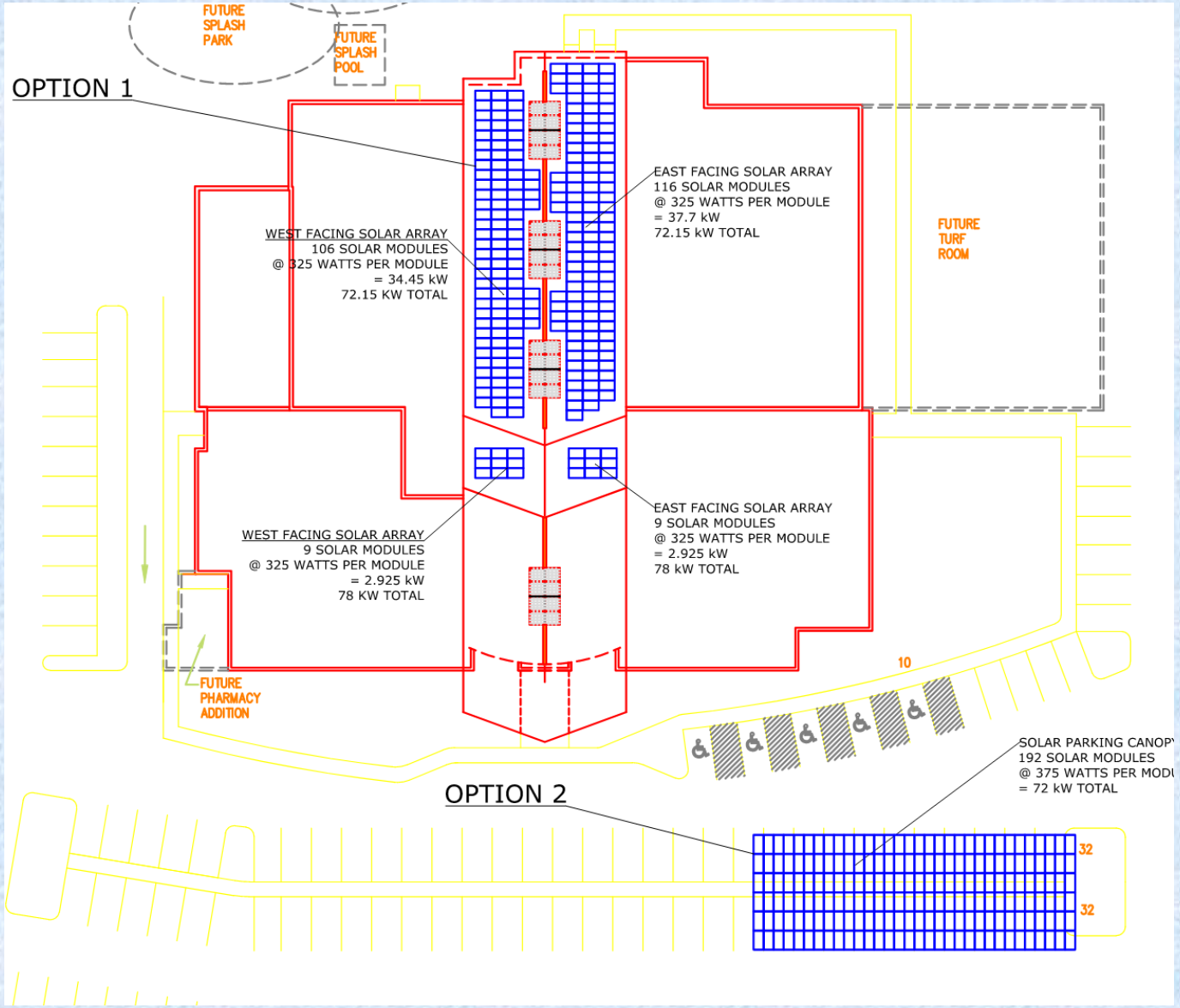

Energy Generation:

- Solar Photovoltaic Panels – Option 1 and 2
- Wind Power – Not considered due to recent system failures and significant maintenance issues

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CO2 Equivalents for EEM Energy Savings Including PV Panels	
268.3	Metric Tons of CO2 equivalent
56.9	Passenger vehicles drive for 1 year
655,546	Miles Driven by an Average Passenger Vehicle
30,170	Gallons of Gasoline Consumed
293,114	Pounds of Coal burned
621	Barrels of oil consumed

Overall installing the accepted envelope, lighting, PV and VAV HVAC measures would result in energy savings of about $31,561.00 per Year

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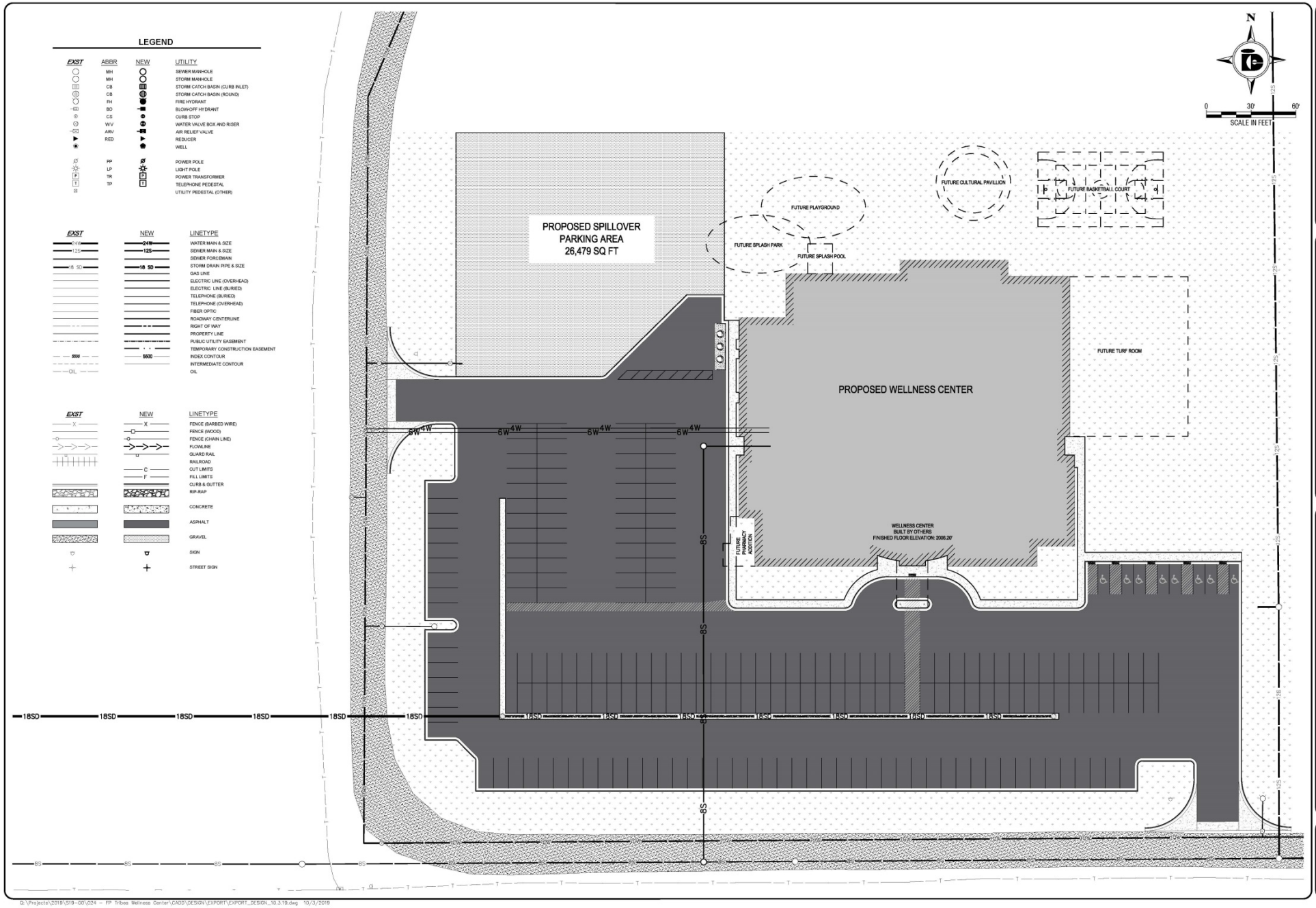

Rev No	Date	By	Description

POPLAR WELLNESS CENTER
FORT PECK ASSINIBOINE AND SIOUX TRIBES
POPLAR, MT

PROPOSED SITE

Drawn By:	TET	Surveyed By:	JOE	Project No:	S1900024
Checked By:	RLK	Designed By:	TET/RLK	Date:	10/2019

Interstate Engineering, Inc.
P.O. Box 648
2177 Lincoln Ave. SE
Sidney, MT 59270-0648
Ph (406) 433-5617
Fax (406) 433-5618
www.interstateeng.com
Other offices in Minnesota, North Dakota and South Dakota
INTERSTATE ENGINEERING
Professionals you need, people you trust.

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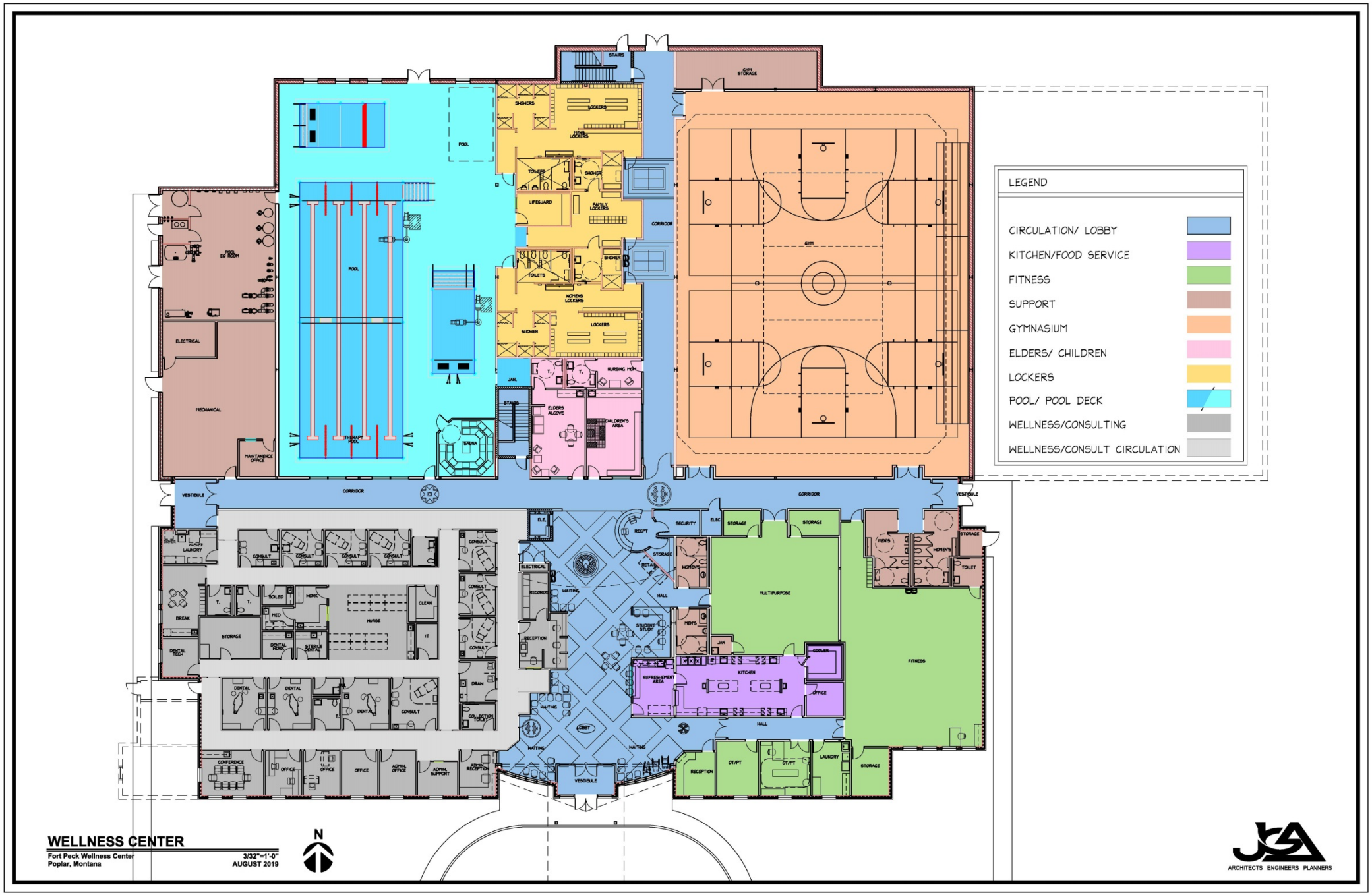

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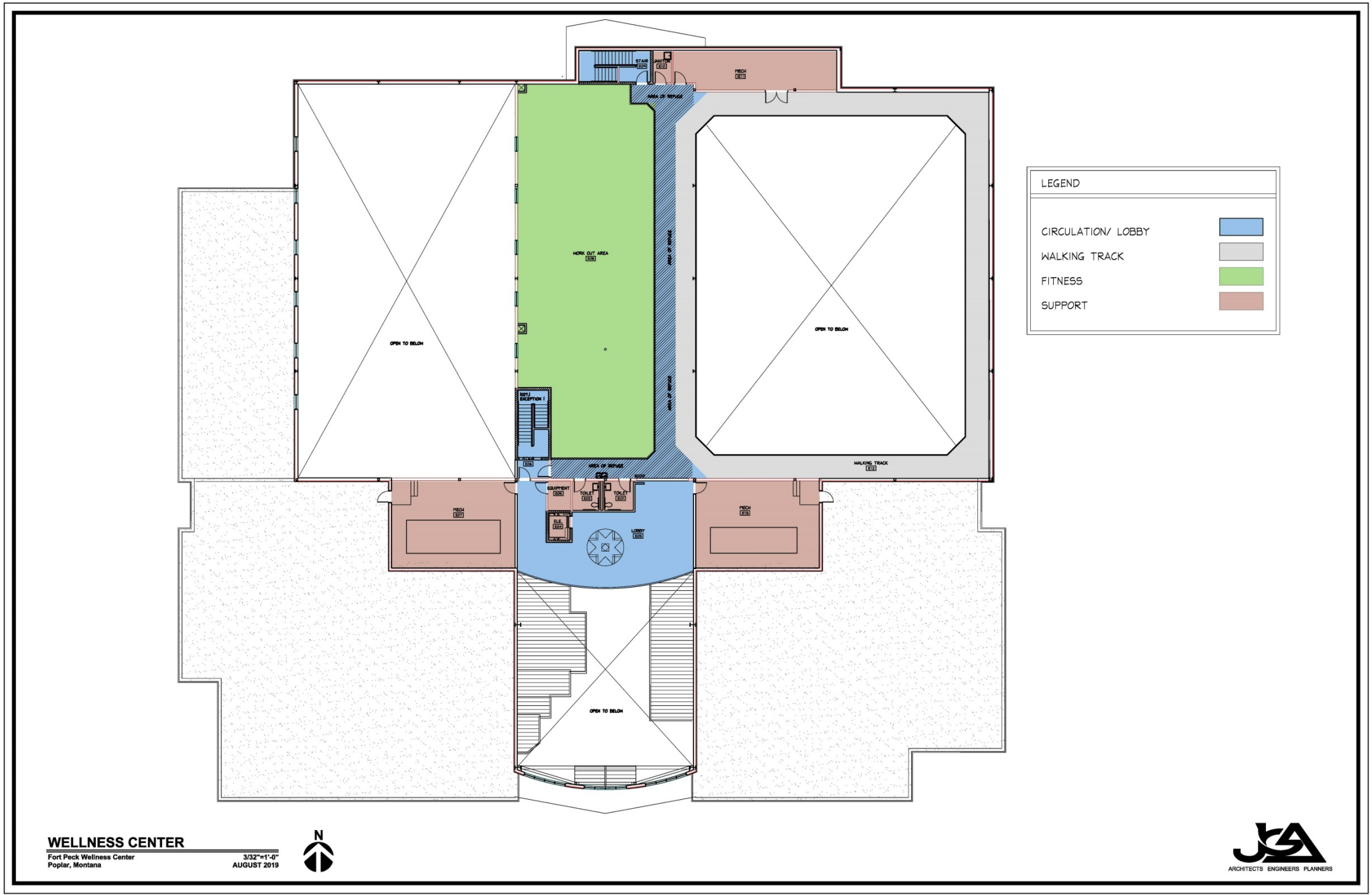

WELLNESS CENTER

Fort Peck Wellness Center
Poplar, Montana

3/32"=1'-0"
AUGUST 2019

ARCHITECTS ENGINEERS PLANNERS

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Current Status of Construction

EEM items

- Shop Drawing review
- Equipment ordered
- Material ordered

- No EEM installed at this time
- Envelope framing under construction
- COVID 19 precautions are being followed

- Construction Photos

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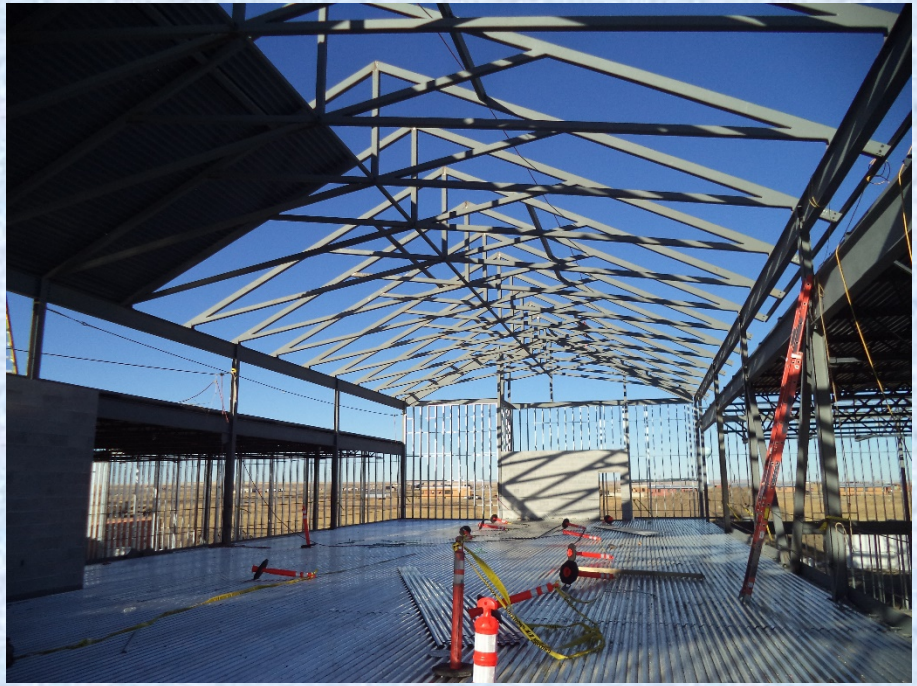

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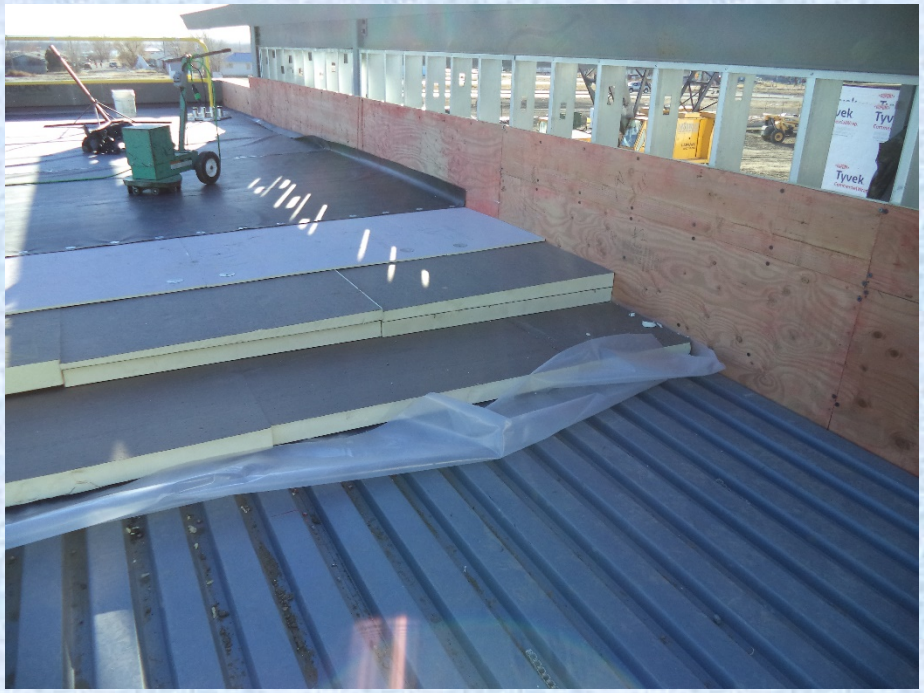

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Fort Peck Tribes
Wellness Center
Poplar, Montana
March 28, 2019

ID	Task Name	Start	Finish
1	Fort Peck Tribes Wellness Center	Thu 12/20/18	Tue 5/14/19
2	Phase 1 Services - Preliminary Design and Programming	Thu 12/20/18	Tue 5/14/19
3	Kick-off meeting, communications plan/goal setting	Thu 12/20/18	Thu 12/20/18
4	Research and data gathering	Fri 12/21/18	Wed 1/2/19
5	Programming Session	Thu 1/3/19	Thu 1/3/19
6	Pre-design	Fri 1/4/19	Fri 1/11/19
7	Presentation of Program & Conceptual Design	Mon 1/14/19	Mon 1/14/19
8	Owner review and approval	Tue 1/15/19	Tue 1/29/19
9	Program refinement	Wed 1/30/19	Wed 2/6/19
10	Design Concept refinement	Thu 2/7/19	Thu 3/28/19
11	DOE Grant Assistance	Fri 3/29/19	Tue 4/30/19
12	Owner Review and Approval	Wed 5/1/19	Tue 5/14/19
13	Phase 2 Services - Schematic Design (SD) 10% Completion	Wed 5/1/19	Fri 6/25/21
14	Schematic design documents	Wed 5/15/19	Tue 6/25/19
15	SD - Cost model update	Wed 6/26/19	Mon 7/1/19
16	Facilities Roundtable	Tue 7/2/19	Tue 7/2/19
17	Owner Review and approval	Wed 7/3/19	Mon 7/8/19
18	Design Development (DD) integration 35% Completion	Wed 5/1/19	Mon 9/23/19
19	User review sessions	Tue 7/9/19	Wed 7/10/19
20	Design Development Drawings	Thu 7/11/19	Wed 9/11/19
21	DOE Grant Award Notification	Wed 5/1/19	Thu 8/1/19
22	EEM's and PV System input/coordination/Finalize Building Envelope detail	Mon 8/5/19	Fri 9/6/19
30	Engineering Coordination Meeting	Thu 9/12/19	Thu 9/12/19
31	DD Cost Model update	Fri 9/13/19	Wed 9/18/19
32	Owner Review and approval	Thu 9/19/19	Mon 9/23/19
33	Construction Document (CD) integration 60% Completion	Tue 9/24/19	Tue 1/21/20
34	Completion of CDs by design team	Tue 9/24/19	Tue 1/7/20
35	Finalize CD's & Building Envelope CD's - EEM's - E2, E4, E8 and E11	Tue 9/24/19	Tue 1/7/20
36	Finalize the CD's for EEM - L1 High Efficiency Lighting	Mon 9/30/19	Fri 10/11/19
37	Finalize the CD's For EEM - VM1 High Efficiency DX AHU	Mon 10/14/19	Fri 10/25/19
38	Finalize the CD's for EEM - VM3 High Efficiency Boiler	Mon 10/28/19	Fri 11/8/19
39	Finalize the CD'S for EEM - VM5 Dehumid Heat recovery for pool	Mon 11/11/19	Fri 11/22/19
40	Finalize the CD's for EEM - P1 High Efficiency Boiler for Pool	Mon 11/25/19	Fri 12/6/19
41	Finalize the CD'S for EEM - P3 Pool Covers	Mon 12/9/19	Fri 12/20/19
42	Finalize the CD's for EEM - PV1 Photovoltaic Array on Roof	Mon 12/23/19	Fri 1/3/20
43	CD's cost model refinement	Mon 1/6/20	Thu 1/9/20
44	Owner Review and approval 90% completion	Fri 1/10/20	Wed 1/15/20
45	CD pick-ups	Thu 1/16/20	Mon 1/20/20
46	Second review 100% Completion	Tue 1/21/20	Tue 1/21/20
47	Bidding/Plan Review and Permitting	Wed 1/22/20	Thu 2/20/20
48	Advertising for Bids	Wed 1/22/20	Thu 2/6/20
49	Submission to AHJ for Plan review	Wed 1/22/20	Tue 2/4/20
50	Pre-bid meeting - with Special emphasis on EEM's and PV Systems	Wed 2/5/20	Wed 2/5/20
51	Bid opening	Thu 2/6/20	Thu 2/6/20
52	Contracts/notice to proceed	Fri 2/7/20	Thu 2/20/20
53	Construction	Fri 2/21/20	Fri 6/25/21
54	Construction Administration (CA)	Fri 2/21/20	Mon 6/21/21
55	Building construction	Fri 2/21/20	Mon 6/21/21
56	Substantial Completion/Final acceptance	Tue 6/22/21	Fri 6/25/21
57	Warranty inspection - 11 months	Thu 5/26/22	Thu 5/26/22

Project: Fort Peck Tribes Wellness Center
Date: April 28, 2019

Task | Split | Progress | Milestone | Summary | Project Summary | External Tasks | External Milestone | Deadline

QUESTIONS & ANSWERS

Assiniboine & Sioux Tribes of the Fort Peck Indian Reservation

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